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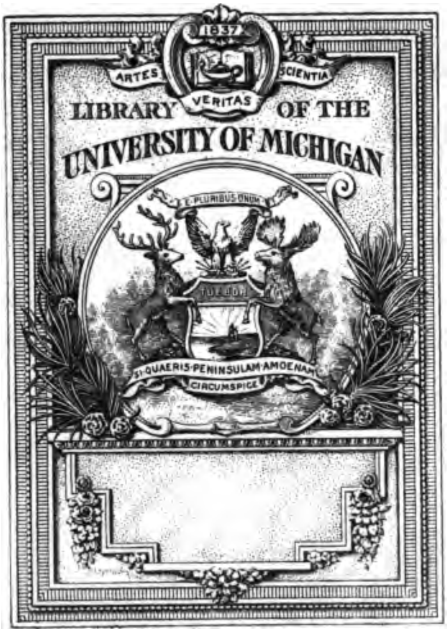
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CALENDAR

OF THE

UNIVERSITY OF MICHIGAN

93798

1898--1899

ANN ARBOR, MICH.
PUBLISHED BY THE UNIVERSITY
1899

CONTENTS.

PAGE.
ANNOUNCEMENTS FOR 1899–1900 6
CALENDAR 7
BOARD OF REGENTS 8
MEMBERS OF THE FACULTIES AND OTHER OFFICERS . . 9
UNIVERSITY OF MICHIGAN 22
  The University and the State 22
  Organization of the University 22
  The Libraries 23
  The Astronomical Observatory 24
  The Museums 25
  The Laboratories 29
  The Hospitals 33
  Aids to Moral and Religious Culture 34
  Facilities for Physical Culture 34
  Oratorical Associations 36
  University Organizations 38
  Relation of Students to Civil Authorities 39
  Fees and Expenses 39
DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS . 42
  Admission of Undergraduates 43
    Admission of Candidates for a Degree on Examination: . 43
      Group I 44
      Group II 47
      Group III 48
      Group IV 49
      Admission to Advanced Standing 49
    Admission of Students not Candidates for a Degree . . 51
    Time of Examination 52
    Admission on Diploma 53
  Courses of Instruction 59
  Courses in Professional Study 110
    Combined Course in Collegiate and Medical Studies . 111
    Combined Course in Collegiate and Law Studies . . 113

Requirements for Graduation 114
Graduation on the Credit System 114
Graduation on the University System 117
Teacher's Diploma and Teacher's Certificate . . . 119
Fellowships and Scholarships 120
Rules and Regulations of the Department 122
Fees and Expenses 126
GRADUATE SCHOOL 127
Admission and Registration 127
Course of Instruction 128
Requirements for Graduation 129
Fees and Expenses 131
DEPARTMENT OF ENGINEERING 132
Requirements for Admission 133
The Work of the Department 139
Facilities for Instruction 147
The Engineering Society 150
Courses of Instruction 150
Sequence of Studies 161
Requirements for Graduation 163
Fees and Expenses 166
DEPARTMENT OF MEDICINE AND SURGERY 168
Requirements for Admission 168
Course of Instruction 171
Requirements for Graduation 174
Graduate Courses 175
Facilities for Instruction 176
The University Hospital 181
Text-Books and Books of Reference 183
Fees and Expenses 183
DEPARTMENT OF LAW 185
Directions to Applicants for Admission 186
Requirements for Admission 186
Course of Instruction 189
The Graduate Course 195
Requirements for Graduation 197
Libraries 197
Work in the Department of Literature, Science, and the Arts 198
Fees and Expenses 200
Summer School of Law 200
SCHOOL OF PHARMACY 203
Requirements for Admission 204
Courses of Instruction 207

Succession of Studies 213
Requirements for Graduation 215
Stearns Fellowship 216
Library, Books of Reference, and Text-Books 216
Fees and Expenses 217
HOMŒOPATHIC MEDICAL COLLEGE 218
Requirements for Admission 218
Course of Instruction 220
Requirements for Graduation 226
Graduate Courses 226
Facilities for Instruction 227
The University Hospital, Homœopathic 228
Fees and Expenses 229
COLLEGE OF DENTAL SURGERY 231
Requirements for Admission 231
Assignment of Seats 233
Course of Instruction 234
Requirements for Graduation 237
Graduate Course 238
Facilities for Instruction 239
Text-Books 241
Fees and Expenses 241
SUMMER SCHOOL IN THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS 243
General Regulations 243
Courses of Instruction 244
LIST OF GRADUATES OF 1898 249
FACULTIES AND STUDENTS 261
Department of Literature, Science, and the Arts . . . 261
Department of Engineering 297
Department of Medicine and Surgery 305
Department of Law 319
School of Pharmacy 339
Homœopathic Medical College 343
College of Dental Surgery 346
Summer Schools of 1898 353
SUMMARY OF STUDENTS 360
SUMMARY BY STATES AND BY DEPARTMENTS 362
PERRY SCHOLARSHIP FUND 363
OFFICERS OF THE ALUMNI ASSOCIATION 364
INDEX OF UNIVERSITY OFFICERS 365
GENERAL INDEX 368

ANNOUNCEMENTS FOR 1899–1900.

1899.	
Jan. 10.	University Exercises resumed after Holiday Vacation.
Feb. 10.	(Evening.) First Semester Closes.
Feb. 13.	Second Semester Begins.
April 14.	(Evening.) Recess begins, ending April 24 (evening).
June 18.	*Baccalaureate Address.*
June 20.	*Class Day.*
June 21.	*Alumni Day.*
June 22.	Commencement in all Departments of the University. The Commencement Oration is to be delivered by Nicholas Murray Butler, LL.D., Professor in Columbia University.
	Summer Vacation from June 23 to September 25.
Sept. 21–23.	*Examination for Admission to the Department of Literature, Science, and the Arts, to the Department of Engineering, to the Department of Medicine and Surgery, and to the School of Pharmacy.*
Sept. 22–25.	*Examination for Admission to the Department of Law.*
Sept. 25.	*Examination for Admission to the Homœopathic Medical College, and to the College of Dental Surgery.*
Sept. 26.	First Semester Begins in all Departments of the University.
Nov. —	Thanksgiving Recess of three days, beginning Tuesday evening, in all Departments of the University.
Dec. 21.	(Evening.) Holiday Vacation begins in all Departments.
1900.	
Jan. 9.	Exercises resumed.
Feb. 9.	(Evening.) First Semester Closes.
Feb. 12.	Second Semester Begins.
April 13.	(Evening.) Recess begins, ending April 23 (evening).
June 21.	Commencement in all Departments of the University.

1899

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*Absent on leave.

Non-Resident Lecturers on Special Topics for 1898–9.

JOHN B. CLAYBERG, LL.B., *Lecturer on Mining Law.* Helena, Mon.

MELVILLE M. BIGELOW, PH.D., *Lecturer on Insurance.* Cambridge, Mass.

HENRY H. SWAN, A.M., *Lecturer on Admiralty Law.* Detroit.

OSCAR R. LONG, M.D., *Lecturer on Mental and Nervous Diseases in the Homœopathic Medical College.* Ionia.

FRANK F. REED, A.B., *Lecturer on Copyright Law.* Chicago, Ill.

ALBERT H. WALKER, LL.B., *Lecturer on Patent Law.* Hartford, Conn.

WILLIAM M. EDWARDS, M.D., *Lecturer on Mental Diseases in the Department of Medicine and Surgery.* Kalamazoo.

EDMUND A. CHRISTIAN, A.B., M.D., *Lecturer on Mental Diseases in the Department of Medicine and Surgery.* Pontiac.

JAMES D. MUNSON, M.D., *Lecturer on Mental Diseases in the Department of Medicine and Surgery.* Traverse City.

SAMUEL BELL, M.D., *Lecturer on Mental Diseases in the Department of Medicine and Surgery.* Newberry.

HENRY B. BAKER, A.M., M.D., *Lecturer on the Administration of Health Laws.* Lansing.

Other Appointments for 1898–9.

AARON V. McALVAY, A.B., LL.B., *Professor of Law.* Manistee.

KEENE FITZPATRICK, *Acting Director of the Gymnasium.* 1130 Washtenaw Avenue.

VICTOR C. VAUGHAN, PH.D., SC.D., M.D., *Lecturer on Toxicology in its Legal Relations in the Department of Law.* 221 South State Street.

HENRY C. ADAMS, LL.D., *Lecturer on the Railroad Problem in the Department of Law.* 1421 Hill Street.

ANDREW C. McLAUGHLIN, A.M., LL.B., *Lecturer on Constitutional Law and Constitutional History in the Department of Law.* 836 Tappan Street.

RICHARD HUDSON, A.M., *Lecturer on Comparative Constitutional Law in the Department of Law.* 1023 Oakland Avenue.

WILLIAM J. HERDMAN, M.D., LL.D., *Lecturer on Neurology, Electrology, and Railway Injuries in the Department of Law.* 328 East Huron Street.

JOSEPH H. DRAKE, A.B., *Lecturer on Roman Law in the Department of Law.* 632 Forest Avenue.

SIMON M. YUTZY, M.D., *Instructor in Anatomy and Demonstrator of Anatomy.* 326 South State Street.

MARCUS P. HALL, D.D.S., *Instructor in Dental Anatomy, Operative Technique, and Clinical Operative Dentistry.* 1502 Hill Street.

JOHN W. DWYER, LL.M., *Instructor in Law.*
721 East Kingsley Street.

FRANK W. NAGLER, B.S., *Instructor in Electrotherapeutics.*
708 South Twelfth Street.

WILLIAM H. WAIT, PH.D., *Instructor in Greek, Latin, and Sanskrit.* 904 Olivia Place.

PERRY F. TROWBRIDGE, PH.B., *Instructor in Organic Chemistry, and Accountant in the Chemical Laboratory.*

[illegible] L. SHERMAN, PH.D., *Instructor in General Chemistry.* 1132 Washtenaw Avenue.

JOHN R. ALLEN, M.E., *Instructor in Mechanical Engineering.*
226 South Ingalls Street.

HERBERT H. WAITE, A.B., *Instructor in Bacteriology, and Dispensing Clerk in the Hygienic Laboratory.*
710 East Catherine Street.

CHARLES A. RABETHGE, M.D., *Instructor in the Gymnasium.*
611 Forest Avenue.

WARREN W. FLORER, PH.D., *Instructor in German.*
602 Packard Street.

WALTER B. PILLSBURY, PH.D., *Instructor in Psychology.*
1328 Washtenaw Avenue.

ALBERT J. FARRAH, LL.B., *Instructor in Law.*
507 Lawrence Street.

EDWIN C. ROEDDER, PH.D., *Instructor in German.*
507 East Ann Street.

ALFRED H. WHITE, A.B., *Instructor in Chemical Technology.*
413 East Liberty Street.

WALTER DENNISON, PH.D., *Instructor in Latin.*
1020 Michigan Avenue.

CARROLL D. JONES, E.E., *Instructor in Electrical Engineering.*
126 Packard Street.

JOHN S. P. TATLOCK, A.M., *Instructor in English.*
306 North Division Street.

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*Absent on leave.

FANNY E. LANGDON, M.S., *Instructor in Zoology.*
543 Church Street.

MOSES GOMBERG, Sc.D., *Instructor in Organic Chemistry.*
1505 South University Avenue.

JOHN E. LAUTNER, M.L., *Instructor in German.*
541 Packard Street.

JOHN B. JOHNSTON, Ph.B., *Instructor in Zoology.*
621 South Ingalls Street.

ALICE G. SNYDER, *Instructor in the Women's Gymnasium.*
307 North State Street.

WILBUR C. ABBOTT, B.Litt., *Instructor in History.*
1024 Hill Street.

S. LAWRENCE BIGELOW, Ph.D., *Instructor in General Chemistry.*
321 South Division Street.

JAMES B. POLLOCK, Sc.D., *Instructor in Botany.*
425 South Division Street.

EWALD BOUCKE, Ph.D., *Instructor in German.*
808 South State Street.

AUGUSTUS TROWBRIDGE, Ph.D., *Instructor in Physics.*
812 East Catherine Street.

BENJAMIN P. BOURLAND, Ph.D., *Instructor in French.*
544 Thompson Street.

COLMAN D. FRANK, Ph.B., *Instructor in French.*
413 Thompson Street.

WILLIAM H. BUTTS, A.M., *Instructor in Mathematics.*
802 Monroe Street.

ALBERT W. WHITNEY, A.B., *Instructor in Mathematics.*
1132 Washtenaw Avenue.

ERNST J. FLUEGEL, Ph.D., *Instructor in German.*
1211 Willard Street.

HAMILTON G. TIMBERLAKE, A.B., M.S., *Instructor in Botany.*
304 East Jefferson Street.

JULIA W. SNOW, Ph.D., *Instructor in Botany.*
620 South State Street.

ROBERT C. STEVENS, A.B., B.S., *Instructor in Mechanical Engineering.*
1215 South University Avenue.

ARCHIBALD CAMPBELL, Ph.M., *Instructor in Organic Chemistry and Accountant in the Chemical Laboratory.*
639 South Twelfth Street.

JOHN R. ROOD, LL.B., *Instructor in Law.* 1133 Forest Avenue.

SHIRLEY W. SMITH, B.L., *Instructor in English.*
615 South Ingalls Street.

HUGO P. THIEME, PH.D., *Instructor in French.*
545 Thompson Street.

GEORGE L. GRIMES, B.S., *Instructor in Mechanical Engineering.*
214 South Thayer Street.

CARL V. TOWER, PH.D., *Instructor in Philosophy.*
523 East Madison Street.

JOHN E. GRANRUD, PH.D., *Instructor in Latin.* 512 Spring Street.

JAMES G. LYNDS, M.D., *Demonstrator of Obstetrics and Gynæcology.*
227 South State Street.

ALICE L. HUNT, *Assistant in Drawing.* 218 South Thayer Street.

FRED P. JORDAN, A.B., *Assistant in the General Library in charge of Catalogue.*
923 Olivia Place.

CYRENUS G. DARLING, M.D., *Demonstrator of Surgery and Lecturer on Minor Surgery in the Department of Medicine and Surgery, and Clinical Lecturer on Oral Pathology and Surgery in the College of Dental Surgery.*
620 East University Avenue.

BYRON A. FINNEY, A.B., *Assistant in the General Library in charge of Circulation.*
849 Tappan Street.

JAMES P. BRIGGS, PH.C., *Pharmacist in the University Hospital.*
712 East Catherine Street.

JEANNE C. SOLIS, M.D., *Demonstrator of Nervous Diseases in the Department of Medicine and Surgery.*
709 West Huron Street.

NORMAN A. WOOD, *Taxidermist.* 1216 South University Avenue.

HERMAN E. BROWN, B.S., *Assistant in Qualitative Analysis.*
712 Mary Street.

D. MURRAY COWIE, M.D., *Assistant to the Professor of the Theory and Practice of Medicine in the Department of Medicine and Surgery.*
1525 West Huron Street.

CASPER K. LAHUIS, M.D., *Assistant to the Professor of Obstetrics and Diseases of Women in the Department of Medicine and Surgery.*
307 South State Street.

AUGUSTUS E. GUENTHER, B.S., *Assistant in Physiology.*
507 Elm Street.

CHARLES L. BLISS, B.S., *Assistant in Physiological Chemistry.*
710 East Catherine Street.

HARRY W. CLARK, B.S., *Superintendent of the University Hospital.*
1132 East Catherine Street.

GEORGE B. WALLACE, M.D., *Assistant in Pharmacology in the Department of Medicine and Surgery.* 1021 East Huron Street.

JOHN S. JOHNSON, M.D., *Demonstrator of Ophthalmology and Otology in the Department of Medicine and Surgery.*
328 South State Street.

JAMES R. ARNEILL, A.B., M.D., *Demonstrator of Clinical Medicine in the Department of Medicine and Surgery.*
710 East Catherine Street.

WILLIAM A. SPITZLEY, A.B., M.D., *Assistant to the Professor of Surgery in the Department of Medicine and Surgery.*
324 South State Street.

CHARLES B. GAUSS, M.D., *House Surgeon in the University Hospital.* University Hospital.

ARTHUR H. BENEFIEL, *Assistant in Botany.*
324 East Jefferson Street.

WILLIAM H. HESS, B.S., *Assistant in Organic Chemistry.*
721 East Huron Street.

JULIET M. BUTLER, M.S., *Assistant in Zoology.*
1328 Washtenaw Avenue.

ERNEST CLEVERDON, *Assistant in Zoology.*
514 South Division Street.

HENRY O. SEVERANCE, A.B., *Assistant in the General Library.*
509 South Fifth Avenue.

EDWARD J. ANDERSON, *Demonstrator of Prosthetic Dentistry.*
624 Packard Street.

THEOPHIL KLINGMANN, PH.C., M.D., *Assistant to the Professor of Diseases of the Mind and Nervous System and Electrotherapeutics in the Department of Medicine and Surgery.*
526 South Ashley Street.

EVI D. BENJAMIN, PH.C., *Assistant in Pharmacy.*
223 South Ingalls Street.

HERBERT E. SARGENT, B.S., *Curater of the Museum.*
609 Monroe Street.

BERT W. PEET, M.S., *Assistant in General Chemistry.*
1317 Wilmot Street.

HENRY H. PARKE, B.L., *Assistant in the Museum.*
521 East Jefferson Street.

CARL SUNDSTROM, *Assistant in Quantitative Analysis.*
1021 East Huron Street.

THOMAS B. COOLEY, A.B., M.D., *Assistant in Hygiene.*
534 South State Street.

NORTON D. COONS, M.D., *Assistant Demonstrator of Anatomy.*
713 East Huron Street.

HAROLD M. DOOLITTLE, *Assistant Demonstrator of Anatomy.*
713 East Huron Street.

LAWRENCE N. UPJOHN, *Assistant Demonstrator of Anatomy.*
214 South Ingalls Street.

LOUISE M. DITHRIDGE, *Assistant Demonstrator of Anatomy.*
213 South Ingalls Street.

JAMES F. BREAKEY, M.D., *Assistant in Dermatology.*
515 East Jefferson Street.

LYDIA M. DeWITT, M.D. *Assistant in Histology.*
614 East Liberty Street.

RALPH H. PAGE, *Laboratory Assistant in General Chemistry.*
426 North Ingalls Street.

JOHN LOEFFLER, *Assistant in Botany.* 916 Wall Street.

SAMUEL A. JEFFERS, A.M., *Assistant in Latin.*
321 East Liberty Street.

GEORGE D. HADZSITS, A.M., *Assistant in Latin.*
439 South Division Street.

JAMES W. STURGIS, A.M., *Assistant in Latin.*
502 South Division Street.

FRANK S. BACHELDER, *Assistant in Zoology.* 611 Church Street.

ROBERT B. HOWELL, D.D.S., *Demonstrator of Mechanical Technique in the College of Dental Surgery.*
907 North University Avenue.

NORMAN K. McINNIS, A.B., *Assistant in English.*
607 East Ann Street.

FREDERICK A. BALDWIN, M.D., *Assistant to the Professor of the Theory and Practice of Medicine in the Department of Medicine and Surgery.* 625 Church Street.

WILL Mac LAKE, M.D., *House Physician in the University Hospital.* University Hospital.

WALTER A. NIVLING, Ph.C., *Assistant in Qualitative Chemistry.*
342 South Fourth Avenue.

ERNEST B. MAYNARD, M.D., *Superintendent of the University Hospital (Homœopathic).* University Hospital (Homœopathic).

SAMUEL P. TUTTLE, M.D., *House Physician in the University Hospital (Homœopathic).* University Hospital (Homœopathic).

CORYDON F. HEARD, M.D., *Assistant to the Professor of Ophthalmic and Aural Surgery in the Department of Medicine and Surgery.* 710 East Ann Street.

FREDERICK J. WILBUR, *Assistant in Astronomy.*
301 North State Street.

RAYMOND H. POND, B.S., *Assistant in the Herbarium.*
332 Maynard Street.

HELEN BENDER, *Assistant in the Women's Gymnasium.*
307 North State Street.

ALFRED E. LINDAU, *Assistant to the Dean of the Department of Engineering.* 636 East University Avenue.

JAMES R. BIBBINS, *Dispensing Clerk in the Electrotherapeutical Laboratory.* 1311 Wilmot Street.

CHARLES W. JOHNSON, PH.C., *Assistant in Qualitative Chemistry.* 328 South Fourth Avenue.

WALTER H. BOWMAN, D.D.S., *Demonstrator of Operative Dentistry.* 609 East Washington Street.

LEON J. COLE, *Assistant in Zoology.* 703 Church Street.

ROBERT T. YOUNG, B.S., *Assistant in Zoology.*
621 South Ingalls Street.

Special Assistants in the Engineering Laboratory.

ROBERT A. WINSLOW, *Foundry.* 947 Wall Street.

JOHN M. SMOOTS, *Iron Room.* 1120 Forest Avenue.

HORACE T. PURFIELD, *Wood and Pattern Room.*
630 South Twelfth Street.

WILLIAM R. McDONALD, *Forge Shop.* 525 Walnut Street.

UNIVERSITY OF MICHIGAN.

THE UNIVERSITY AND THE STATE.

THE University of Michigan is a part of the public educational system of the State. The governing body of the institution is a Board of Regents, elected by popular vote for terms of eight years, as provided in the Constitution of the State. In accordance with the law of the State, the University aims to complete and crown the work that is begun in the public schools, by furnishing ample facilities for liberal education in literature, science, and the arts, and for thorough professional study of engineering, medicine, pharmacy, law, and dentistry. Through the aid that has been received from the United States and from the State, it is enabled to offer its privileges, with only moderate charges, to all persons of either sex, who are qualified for admission. While Michigan has endowed her University primarily for the higher education of her own sons and daughters, it must be understood that she also opens the doors of the institution to all students, wherever their homes. It is in this broad, generous, and hospitable spirit, that the University has been founded, and that it endeavors to do its work.

ORGANIZATION OF THE UNIVERSITY.

The University comprises the Department of Literature, Science, and the Arts (including the Graduate School and a Summer School), the Department of Engineering, the Department of Medicine and Surgery, the Department of Law (including a Summer School), the School of Pharmacy, the Homœopathic Medical College, and the College of Dental Surgery. Each department, school, and college, has its special Faculty. The University Senate is a body representing all the faculties, and considers questions of common interest and importance.

In the Department of Literature, Science, and the Arts, different lines of study lead to the degrees of Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, Bachelor of Letters, the corresponding Masters' degrees, and the degrees of Doctor of Philosophy and Doctor of Science.

In the professional schools degrees are given as follows: In the Department of Engineering, the degrees of Bachelor of Science, Master of Science, Civil Engineer, Mechanical Engineer, and Electrical Engineer; in the Department of Medicine and Surgery, the Degree of Doctor of Medicine; in the Department of Law, the degrees of Bachelor of Laws and Master of Laws; in the School of Pharmacy, the degrees of Pharmaceutical Chemist and Bachelor of Science; in the Homœopathic Medical College, the degree of Doctor of Medicine; in the College of Dental Surgery, the degrees of Doctor of Dental Surgery and Doctor of Dental Science.

Students in any department of the University may enter the classes in any other department, upon obtaining permission from the faculties of the respective departments.

THE LIBRARIES.

The libraries of the University are the General Library, the Medical Library, the Law Library, the Homœopathic Library, and the Dental Library. They contained in the aggregate, June 30, 1898, 122,962 volumes, 18,461 unbound pamphlets, and 1,299 maps.

The General Library contains 98,222 volumes, 16,952 unbound pamphlets, and 1,299 maps. In this enumeration are included the following special collections: Parsons Library (political economy), 4,325 volumes and 5,000 pamphlets; McMillan Shakespeare Library, 4,642 volumes; Hagerman Collection (history and political science), 2,666 volumes; Goethe Library, 948 volumes; Dorsch Library (miscellaneous), 1,676 volumes and 148 pamphlets.

Seven hundred and forty periodicals are received.

The catalogue of the library is the usual card catalogue of authors and subjects.

Members of the faculties and other officers of the University may draw books from the library, subject to certain restrictions. To all other persons it is a reference library. The reading room for general use will seat 210 readers. Separate rooms are provided for advanced students where work is pursued with the necessary books at hand.

The library is open for consultation fourteen hours daily during the academic year, nine hours daily during the six weeks of the Summer Schools, and six hours daily from the close of the Summer Schools until the end of the summer vacation. The only exceptions to the above are Sundays and legal holidays.

The income of the FORD-MESSER BEQUEST of $20,000 and of the COYL BEQUEST of $10,000, is used for the increase of the General Library.

THE MEDICAL LIBRARY, containing 8,630 volumes and 1,499 unbound pamphlets, is shelved with the General Library, and is consulted under the same regulations. One hundred and forty-five medical journals are regularly received.

THE LAW LIBRARY, containing 14,609 volumes,* occupies the large room on the second floor of the new law building.

THE LIBRARY OF THE HOMŒOPATHIC MEDICAL COLLEGE is shelved with the General Library and is subject to the same regulations. It contains 665 volumes and ten pamphlets. Twenty periodicals are regularly received.

THE LIBRARY OF THE COLLEGE OF DENTAL SURGERY is shelved in a room in the dental building. It contains several sets of valuable periodicals and many of the most important treatises on the theory and practice of dentistry. The whole number of volumes is 836. Thirteen dental periodicals are taken.

THE ASTRONOMICAL OBSERVATORY.

The Observatory is known as the Detroit Observatory, having been founded through the liberality of citizens of Detroit. Valuable additions and improvements have been made by contributions from several sources. The building consists of a main part, with a movable dome, and two wings. The meridian circle in the east wing was presented by Mr. Henry N. Walker, of Detroit. It was constructed by Pistor & Martins, of Berlin. In the main part are mounted clocks by Tiede and Howard. The west wing contains the observatory library, which connects with the residence of the Director. The refracting telescope, mounted in the dome, has an object glass thirteen inches in diameter. It was constructed by the late Henry Fitz, of New York.

A small observatory near the main building is used in the work of instruction. It contains an equatorial telescope of six inches aperture, and a transit instrument of three inches aperture, with zenith telescope attachment.

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* The valuable law library of the late Judge Samuel T. Douglass, presented to the University by his widow and family, was received too late to be included in this enumeration.

THE MUSEUMS.

The University Museums contain collections illustrative of natural history, the industrial arts, chemistry, materia medica, anatomy, archæology, ethnology, the fine arts, and history, arranged in such a way as to render them accessible both to students and to visitors. The University affords a secure depository for objects of value and curiosity, and it is hoped that frequent gifts will be made to its several museums.

The museum building contains the collections in zoology and geology, the industrial arts, archæology and ethnology, the Chinese exhibit, and the Stearns Collection of musical instruments. The mineral collection is kept in Tappan Hall, and the herbaria are cared for at the botanical laboratory. The collections of works of art, including historical medallions and coins, are in the art gallery in the library building.

The following descriptions indicate the character of some of the collections belonging to the University. The collections especially used for instruction in medicine and in dentistry will be found described in the chapters devoted to the medical and dental schools.

NATURAL HISTORY.

I. THE MINERALOGICAL COLLECTION comprises about 6,000 specimens. It embraces about 2,500 specimens (principally European) purchased of the late BARON LEDERER, and known as the LEDERER COLLECTION; and, besides others, a rich collection of the MINERAL SPECIES OF MICHIGAN, including all varieties of copper ore and associated minerals from the Lake Superior mining region.

II. THE GEOLOGICAL COLLECTION consists of:

1. The large series of lithological and palæontological specimens brought together by the State geological survey, of which over a hundred fossil species have become the types of original descriptions.

2. THE WHITE COLLECTION, consisting of 1,018 distinct entries, 6,000 specimens, of invertebrate fossils.

3. THE ROMINGER COLLECTION, embracing about 5,000 species of invertebrate fossils, represented by at least 25,000 specimens. The collection contains (1) the types of all the palæozoic corals described by Dr. Rominger in the Geological Report of Michigan, volume iii.,—not alone the specimens figured, but numerous specimens of each species, which are not duplicates, but illustrations of different characters and varieties; (2) a collection of *Stromatoporoids*—probably the largest and finest in the world; (3) a similar collection of *Bryozoa;* (4) palæozoic fossils belonging to all the other classes; (5) European fossils of all classes and ages in large number—the sponges forming, with the American specimens, a collection of great interest. Since the purchase of this collection by the University, Dr. Rominger has added to it more than 250 species

of invertebrate fossils, represented approximately by 1,000 specimens, among which there are many of great value.

4. SMITHSONIAN DEPOSITS, consisting, for the present, of a collection of specimens of foreign and domestic building stones, and twenty-three specimens of fossils from the Upper Missouri.

5. MISCELLANEOUS DONATIONS, COLLECTIONS, AND PURCHASES, including a series illustrative of the metalliferous regions of the Upper Peninsula, collected by the late Professor Winchell, an interesting collection of fossils, chiefly Cretaceous, from the Yellowstone Valley, presented by the late General Custer, U. S. A., and a series of six to eight hundred rock species and varieties from the Drift of Ann Arbor, collected, dressed to standard size and form, and presented by the late Miss Eliza J. Patterson. A collection of 150 specimens of ores and rocks has recently been presented by the U. S. National Museum.

The entire collection, the larger portion of which consists of invertebrate fossils, is estimated to contain approximately 17,000 entries and about 60,000 specimens.

III. THE ZOOLOGICAL COLLECTIONS are very large. They comprise a series illustrative of the fauna of Michigan and other northern and western States; a collection of the animals of the Pacific Coast made by Lieutenant Trowbridge; many valuable specimens collected in the Philippine Islands by Dr. Steere in the years 1887 and 1888; and specimens from other foreign countries obtained through the medium of the Smithsonian Institution.

The Bird Collection includes 3669 skins and 1478 mounted specimens. A series of groups illustrative of special facts, such as protective coloration, albinism, parasitism, individual variation, dichromatism, difference in plumage correlated with age, season, sex, etc., has been recently installed, and a second series illustrative of the life history of typical representatives of the several orders of birds is in process of installation. In all these groups natural surroundings are reproduced in detail.

The Collection of Alcoholic Material includes a fine series of invertebrate types, as well as many interesting vertebrates and a considerable number of anatomical preparations. It is stored in a darkened room. Special protection against fire is afforded by a system of overhead sprays, while an inclined waterproof floor, discharging on the outside of the building, makes it possible to flood the alcoholic room without causing damage on the floors below.

The collection of land, fresh water, and marine shells includes some 8000 species, many of which are represented by fine series of specimens.

Card catalogues, showing the exact place of every specimen, make the collections of birds and alcoholics readily accessible.

THE BEAL–STEERE ZOOLOGICAL COLLECTION, made by Dr. Steere in the years 1870 to 1876, comprises numerous corals, shells, insects, birds, and mammals from South America, China, Formosa, the Philippines, and the Moluccas.

IV. THE BOTANICAL COLLECTION contains, in addition to Michigan plants collected by the public surveys, several valuable herbaria and sets of plants that have been presented to the University from time to time. Among these, some of the most important are the HOUGHTON HERBARIUM, the SAGER HERBARIUM, the AMES HERBARIUM, the HARRINGTON COLLECTION, the BEAL–STEERE BOTANICAL COLLECTION, the ADAMS–JEWETT COLLECTION, and the GARRIGUES COLLECTION, all of which have been described in Calendars of previous years.

Among the more recent acquisitions are Collins, Holden, and Setchell's Phycotheca Boreali-Americana, Briosi and Cavara's Funghi Parasiti, Seymour and Earle's Economic Fungi, Ellis's North American Fungi, presented by Mr. Joseph B. Whittier, and large additions to the cryptogamic flora of Michigan, arranged and catalogued by the late Mr. L. N. Johnson.

In addition to these *exsiccati*, there is an extensive collection of material mounted in alcohol or formalin in museum jars, illustrating the biological relations of plants.

CHINESE EXHIBIT.

In 1885 the Chinese Government presented to the University the exhibit which it sent to the New Orleans Exposition. The collection, numbering several thousand specimens, is on exhibition in one of the rooms of the museum building. It illustrates with special fulness the varieties of Chinese cotton, the Chinese processes of manufacturing cotton, and the finished products of cotton and silk. There are many articles showing the skill of the Chinese in working in wood, in ivory, and in porcelain, in embroidery, and in painting on glass and on silk.

CHEMISTRY AND PHARMACOGNOSY.

THE MUSEUM OF APPLIED CHEMISTRY occupies a floor space of 2,500 square feet in the chemical building, and embraces collections as follows:

1. *Vegetables and other Organic Products.*—This collection comprises a series of vegetable products from all parts of the world, such as are used for medicine, food, or industrial purposes, arranged according to the natural orders of plants, and accompanied by colored plates and models of the plants which furnish the products. A series of chemical preparations shows the relative quantities of the several useful constituents in the plants, such as medicinal principles, nutrient substances, varnish

resins, color compounds, tanning agents, oils, perfumes, etc. There is also a set of drawings of microscopical structure intended to aid in the detection of falsifications of foods and other articles of use. The production and the commerce of these articles among the various peoples of the earth are also illustrated. There are also groups of exhibits to show processes of modern manufactures by organic chemical synthesis; and facilities for the study of the beet-sugar industry are especially provided.

2. *Chemical Industry.*—In this collection the natural resources and chief manufactures of Michigan, and of various parts of the world, are illustrated. Crude materials, raw and unfinished products, and completed articles of commerce in their several grades are displayed, together with models and plans of production by modern methods. Among the branches of technical industry so illustrated are works for the production of alkalies, acids, soaps, distillates, starches, oils, dyes and pigments, petroleum products, and clay wares, as well as the useful and the precious metals.

ARCHÆOLOGY AND ETHNOLOGY.

This department contains a collection of the arms, agricultural implements, carpenter's tools, musical instruments, and idols of the Chinese, belonging to the BEAL-STEERE COLLECTION, together with many articles of domestic and warlike use among the North American Indians and the Islands of the South Paciffc, numerous remains of the ancient Peruvians, and many specimens of clothing, art, etc., of the American Indians, modern Peruvians, Formosans, and natives of the East Indies and Alaska. The Chinese Exhibit above referred to contains a large number of articles illustrative of ethnology. From the Smithsonian Institution there have been received a comprehensive collection of casts of objects from Europe and from the mounds of the Ohio valley, and a fine collection of pottery from the cliff dwellings of New Mexico and Arizona. The valuable collection made by the late David DePue, mostly from Washtenaw County, Mich., and a collection of flint implements from Denmark, have recently been added.

THE FINE ARTS AND HISTORY.

The works of art belonging to the University are on exhibition in the galleries provided for them in the library building. A printed catalogue, prepared by Professor D'Ooge, contains fuller descriptions than can here be given. The collection was begun in 1855. It contains a gallery of casts, in full size and in reduction, of some of the most valuable ancient statues and busts, such as the Apollo Belvedere, the Laocoon, and the Sophocles; more than two hundred reductions and models in terra cotta and other materials; the statute of Nydia by Randolph Rogers; casts of modern statues, busts, etc., and reliefs; a number of engravings and photographic views, illustrating especially the architectural and sculptural remains of Ancient Italy and Greece; a small collection of engraved copies of the great masterpieces of modern painting; two series of historical medallions—the HORACE WHITE COLLECTION, and the GOVERNOR BAGLEY COLLECTION—the former illustrative of ancient, mediævall and modern European history, the latter designed to embrace the commemorative medals struck by order of Congress or other authorities, and now containing one hundred such medals; and a large collection of coins, chiefly Greek and Roman, presented to the University by the late Dr. A. E. Richards.

The ROGERS GALLERY comprises the entire collection of the original casts of the works of the late Randolph Rogers, more than a hundred in number. It was given by that distinguished sculptor to the State of Michigan for the University museum.

The late Henry C. Lewis, of Coldwater, bequeathed to the University his valuable collection of works of art comprising about four hundred and fifty paintings and forty pieces of statuary. This collectien has recently come into the possession of the University. It has been placed provisionally in the art gallery, where, however, it cannot be exhibited to advantage for lack of room.

Mr. Frederick Stearns, of Detroit, has recently given to the University a large and valuable collection of musical instruments illustrating the history of music and the progress of musical art. It is expected that the collection will be ready for exhibition before the close of the current academic year.

THE LABORATORIES.

In the several laboratories of the University opportunities are provided for practical instruction in physics, chemistry, geology, zoology, psychology, botany, engineering, histology, physiology, hygiene, electrotherapeutics, pathology, anatomy, and dentistry. The laboratories designed primarily for students of engineering, of medicine, and of dentistry are described in the chapters devoted to the engineering, the medical, and the dental schools.

THE PHYSICAL LABORATORY.

The basement of the physical laboratory has a German rock-asphaltum floor, with heavy stone-capped piers in every work room, and is devoted entirely to experimental work in electricity and magnetism. The dynamo room contains a 50 H. P. electric motor with countershaft and friction clutch, an Edison shunt-wound dynamo of 5,000 watts capacity, a Sperry and a Brush 10-arc-light machine, with lamps for both, a Gramme machine of 5,000 watts made in 1877, a Fort Wayne 30 K. W. alternator, with converters and all the appliances for a complete alternating plant, a Fisher 225-light constant-potential machine, a floating dynamometer, and a 1,500 watt universal alternator for laboratory purposes. In an adjacent room are placed electro-dynamometers, ammeters, voltmeters, a wall resistance of iron wire constructed to absorb about 35 H-P electrical energy, and a bank of 225 incandescent lamps. The photometric room, with blackened walls, and lighted only artificially, is also adjacent to the engine room.

A battery room well ventilated and lighted, and supplied with water, contains a large storage battery. Five smaller work rooms are fitted with the usual appliances for electrical measurements.

On the first floor are a commodious lecture room, an apparatus room, a general laboratory for elementary work, a balance room, a mercury room, and two rooms for a private laboratory.

The laboratory is supplied with the most modern apparatus from the best American and European makers. In sound, it includes tuning forks and resonators from Koenig of Paris; in light, a spectrometer with 12-inch divided circle, an ophthalmo-spectroscope from the Geneva Society, an optical bench, with accessories, from Duboscq, a Zeiss focometer, a Zeiss spectrometer, a Zeiss interferometer, and a polarimeter from Schmidt and Haensch; in electricity, galvanometers and resistance boxes, up to 250,000 units, from Edelmann, Hartmann & Braun, Elliott Brothers, Nalder Brothers & Co., and Queen & Co., besides condensers, voltmelers, and ammeters; Lord Kelvin's graded galvanometers, a centiampere, a deci-ampere, and a deka-ampere balance made by White, of Glasgow; also thirteen Weston ammeters, voltmeters, and wall-meters for both alternating and direct currents. Among the standards are standard cells, a standard 100-ohm, a 10-ohm, and three 1-ohm coils, two standard condensers, and Ayrton and Perry's standard of self-induction, with a secohmmeter by Nalder Brothers.

The work in the laboratory is entirely quantitative in character, but provision has been made for illustrating the general principles of physics in the lecture courses.

CHEMICAL LABORATORIES.

The chemical laboratories provide for classes in general, analytical, organic, and physical chemistry, in pharmacy, in chemical technology, and in metallurgical assaying. They also provide for original research in the several branches of chemical science and for independent investigations in technology. In the course of the year, classes are formed in forty-six distinct courses of study. In the greater number of these courses the method of work combines training in laboratory operations with instruction by lectures and conference, these methods being united in one course.

The chemical building contains in all about 37,000 square feet of floor space. Besides the rooms for recitations, storage, administration, etc., the laboratories for students have an area of about 25,000 square feet.

The laboratory of general chemistry is separately organized. Courses in elementary inorganic chemistry, as well as in physical chemistry and the advanced branches of the science are offered; research work both in inorganic and in organic general chemistry is also arranged for a limited number of students. During the past summer this laboratory has been enlarged to provide for twenty-four additional students and a new room for research. Modern apparatus is on hand for all the varieties of work that are liable to be undertaken, and a well-equipped balance room is provided.

The laboratories of analytical chemistry, organic chemistry, pharmacy, and chemical technology, are carried on together. There are separate work rooms for qualitative analysis, quantitative analysis, iron and steel analysis, electrolytic work, pharmaceutical preparations, organic preparations, organic analysis, physiological chemistry, and assaying of ores,—as well as rooms for the weighing-balances and instruments of precision, for gas analysis, and for optical work. The rooms recently fitted up for chemical technology in various industrial branches have nearly 3000 square feet of floor space. There are eleven separate rooms for original research, two lecture rooms, and two recitation rooms. In the ventilation of the work rooms the supply of fresh air is enforced by driving fans, and the removal of foul air is effected by draught flues and by electric-motor fans, with which, also, working hoods are connected.

The chemical laboratories are open throughout the college year to all students of the University, and are regularly used by the several departments. They are also open to any person who wishes to pursue special studies therein, provided he complies with the conditions for admission to that department of the University to which the desired special studies properly belong.

Over three hundred students are engaged in these laboratories at the same time, each at a table provided for one worker. During the year, from 600 to 700 students complete from one to five courses of study each in the various branches of chemistry. The students engage in chemical work as it is needful for their different purposes,—the pursuit of science, or the preparation for teaching, for the several professions applying chemistry, and for the various chemical arts and industries.

The chemical library contains complete sets of all the most important chemical journals of present and former times, as well as the standard manuals, dictionaries, and enclycopedias. It provides well for research, for technology, and for all kinds of chemical work. A reading room, supplied with works of reference, is open in the chemical building.

GEOLOGICAL LABORATORY.

Opportunity for practical work in geology is provided in rooms set apart for this use in the museum building. The rooms are furnished with microscopes, photographic instruments, cutting and polishing lathes, and other apparatus for the preparation of specimens. Special encouragement and assistance are given to students wishing to carry on original investigations.

BOTANICAL LABORATORY.

In the botanical laboratory instruction is given in the practical study of the structure, development, and physiology of plants, and opportunity is offered for investigation in cellular biology, in embryology and development, in physiology, and in pathology.

Students in the more elementary courses have constant personal assistance and direction from the instructors; the advanced courses require more independent work. Every facility within the means at command will be provided for those capable of doing work in research.

The laboratory comprises four large rooms for general work, five smaller rooms for the work of instructors and investigators, a room for alcoholic material, a dark room, and store rooms. The section assigned to morphology and cytology is provided with microscopes (among them a Zeiss microscope with mechanical stage, apochromatic objectives, and compensation oculars), camera lucidas, and polarizing apparatus; Cambridge, Minot-Zimmermann, Jung, and freezing microtomes; sterilizers, means for embedding, stains and reagents, Wardian cases, and aquaria. The equipment for physiology, besides work rooms provided with chemicals and general apparatus, includes a dark room with constant temperature, incubators, sterilizers, horizontal microscope, balances, thermograph, barometer, auxanometers, klinostats, and centrifugals. The heavier apparatus is driven by water motors and an electric motor. There is a good working library in the laboratory, containing, besides many monographs, the leading French, German, and English periodicals.

ZOOLOGICAL LABORATORY.

The zoological laboratory comprises thirteen rooms in the second and third stories of the south wing of University Hall, with about 7,000 square feet of floor space, and it is lighted by forty-one windows. There is a large room for the elementary work of students, and a smaller room for more advanced work in vertebrate morphology. These two rooms accommodate about fifty students at one time. There is a room for the housing of small mammals, a room for the storage of alcoholic material, and a room in which a reference library is shelved. The professor in charge has a private room; and four small rooms, each accommodating one or two persons, are used by the instructors and by students engaged in investigation. These rooms are provided with water and gas, and are fitted with tables especially designed for the work. A room for work in experimental zoology, a small lecture room, and a photographic room have been recently equipped. There are also rooms set apart in the museum building for the use of persons engaged in the study of museum material.

Suitable provision has been made for the study of animals inhabiting the neighboring waters. There are ten aquaria (the largest seven feet long), and there are arrangements for maintaining thirty small aquaria for the rearing of embryos and the study of isolated forms.

There is a good equipment of microscopes, including a Zeiss microscope with apochromatic lenses, of microtomes, of Zeiss's photographic apparatus, and of other accessories. For illustrative purposes, there is a collection of alcoholic specimens (many of them from the Naples Zoological Station), a set of Leuckart and Nitsche's wall charts and of Ziegler's wax models, and a small collection of Blaschka's glass models.

PSYCHOLOGICAL LABORATORY.

The psychological laboratory consists of four rooms:—one large room fitted for general laboratory and demonstration purposes, two smaller rooms for research, and a dark chamber. The rooms are amply supplied with water, electricity, and gas, and sufficient power for all purposes is furnished by two electric motors. The rooms are connected by wires and tubes for electrical and pneumatic transmission, so that in reaction and registration experiments the subject can be completely isolated from the noises incident to the operation of the recording instruments.

The equipment includes a complete set of apparatus for the work of elementary experimental classes, models of the brain and sense organs, a Hipp chronoscope, kymographs, a large pendulum to regulate the registration apparatus, and the minor accessories for reaction work. In addition there are many of the usual instruments for work in other lines. Such apparatus as is needed for advanced work or research will be procured as required. Every facility and encouragement is offered to students of sufficient preliminary training to undertake investigations on some special problem.

THE HOSPITALS.

There are two hospitals connected with the University, affording ample facilities for clinical instruction. One of the two is under the direction of the Faculty of the Department of Medicine and Surgery;

the other is in charge of the Faculty of the Homœopathic Medical College. Further information in regard to the hospitals is given in connection with the descriptions of the medical schools.

AIDS TO MORAL AND RELIGIOUS CULTURE.

Vesper services are held Tuesday and Thursday afternoons in University Hall, open to all members of the University and to the public.

The Students' Christian Association, which has a large membership, holds stated meetings for religious and for social improvement. Through the enterprising efforts of the Association and the benevolence of those interested in its aims, a spacious and beautiful building, called Newberry Hall, has been erected for its use opposite the University Campus.

The churches of the city of Ann Arbor are cordially thrown open to the students, whose interests are largely consulted by the pastors in their pulpit instruction and in their plans of work. There are churches of the following communions in the city: Baptist, Congregationalist, the Disciples, German Lutheran, German Methodist, Methodist Episcopal, Presbyterian, Protestant Episcopal, Roman Catholic, and Unitarian.

Guilds, and other societies, consisting chiefly of students, have been organized in several of the churches both for religious and moral culture and for social entertainment. The Hobart Guild, connected with St. Andrew's Church (Protestant Episcopal), has a commodious building, called Harris Hall, planned and equipped for the objects of the Guild; and two of the several lectureships contemplated in its plans have been endowed,—the Baldwin Lectures for the Establishment and Defence of Christian Truth, and the Charlotte Wood Slocum Lectureship on Christian Evidences. The Tappan Presbyterian Association occupies the building known as McMillan Hall; it owns a theological library of several thousand volumes, and maintains annual courses of lectures upon church history and church work. The Methodist Episcopal church has organized the Wesleyan Guild, and has a permanent fund for the support of the Henry M. Loud Lectureship. Unity Club is a society formed by the Unitarian Church with similar purposes. The Foley Guild is an organization of Roman Catholic students under the patronage of the Rt. Reverend John S. Foley, bishop of the diocese. The society organized in connection with the Church of the Disciples is called the Inland League.

FACILITIES FOR PHYSICAL CULTURE.

Gymnasiums.—The University has two gymnasiums, one for men and one for women. The former is called the Waterman Gymnasium; the latter, the Barbour Gymnasium. In the conduct of the gymnasiums the aim is not so much the development of a few gymnastic experts as the provision of wholesome physical exercise for the many. The facilities of the buildings, including physical examinations and instruction, are free to all students, the only charge being a rental of $2 a year for a locker. A physical examination and a stated amount of gymnasium work in regular classes are required of students in the Department of Literature, Science, and the Arts and the Department of Engineering during their first year of residence at the University. For other students gymnasium work, for the present, is voluntary.

The Waterman Gymnasium.—The Waterman Gymnasium was erected at a cost of about $65,000. Of this sum $20,000 was given by the late Joshua W. Waterman, of Detroit, in honor of whom the building is named, about $26,000 was raised by private subscription, and $6,000 was turned over by the trustees of a fund that had been accumulated through the efforts of students. The main floor, which is a rectangle with truncated corners and dimensions of 150 by 90 feet, is well equipped with the various kinds of apparatus usually found in the best modern gymnasiums. Several smaller rooms are devoted to administration, fencing, boxing, and other special purposes, while the basement is given up to baths and lockers. The main hall is lighted in the day time by means of a large skylight 60 feet above the floor, and in the evening by electricity. A gallery makes room for an elliptical running-track 375 feet in length.

The Barbour Gymnasium.—In 1895 the sum of $35,000 was contributed by a few friends of the University for the purpose of providing gymnasium facilities for the women students, with the understanding that a further sum of $15,000 should be secured from other sources. The additional sum has not yet been entirely raised, but the erection of the building has been begun and the exterior has been completed. The plan of its construction includes, in addition to a fine gymnasium with the necessary bathing facilities, a commodious hall for lectures and meetings (to be called the Sarah Caswell Angell Hall), and parlors for the accommodation of the women. The need of all these is imperative, but funds are lacking with which to complete the work. The gymnasium room has been completed, and much of the apparatus required for the first and the second year exercise has been put in. The gymnasium work, however, cannot be perfected until baths, dressing rooms, and offices are built. It is hoped that the building will be completed and equipped during the current year.

The Women's Dean (who is also superintendent of the physical education of the women students) and Miss Alice G. Snyder, instructor in the gymnasium, have organized the work in accordance with the best known methods. Special care is taken to ascertain the exact physical condition of each student entering upon gymnasium work, defects of the body are discovered, and corrective work prescribed for all who need it. Tennis, basket ball, and gymnastic games, as well as bicycling, form a part of the recreative work.

Regents' Field.—Regents' Field is a level tract of ten acres, owned by the University and situated a few minutes walk southward from the campus, which has been set apart and equipped especially for open-air sports. The campus itself provides room only for tennis-courts and for a small practice-ground close by the gymnasium.

Supervision of Athletic Sports.—The general supervision of athletic sports is vested in a Board of Control, consisting of nine members, five of whom are chosen from the University Senate, and four chosen by the Board of Directors of the Students' Athletic Association.* The Board thus constituted has charge of all matters involving the relation of athletic sports to the University; for example, the eligibility of players proposed for any University team, the arrangement of intercollegiate games, the granting of leaves of absence, and the investigation of charges of misconduct on the part of players. The policy of the Board is to foster the spirit of honor and gentlemanliness in athletics, to suppress evil tendencies, and to see that play shall not encroach too much upon the claims of work. For the furtherance of these ends certain specific rules and regulations have been adopted, a copy of which can be had on application to the Secretary of the University.

ORATORICAL ASSOCIATIONS.

In addition to the University instruction in elocution and oratory an active and earnest interest in public speaking is fostered and maintained through the agency of voluntary associations of students, and by working in connection with student organizations in other institutions.

NORTHERN ORATORICAL LEAGUE.

The Northern Oratorical League is composed of the oratorical associations of the University of Michigan, Northwestern University, the University of Wisconsin, Oberlin College, the State University of Iowa, the University of Chicago, and the University of Minnesota. Its purpose is to foster an interest in public speaking and to elevate the standard of oratory by holding annual contests. The contests are open only to undergraduates.

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*The Board of Control for the year 1898–99 consists of Professor Pattengill, *Chairman*, Professor Lane, Professor McMurrich, Professor Rolfe, Assistant Professor Drake, Charles Baird, Harry I. Weinstein, Harold H. Emmons, and Harry B. Potter.

Peck Testimonial.—Through the generosity of Mr. Ferdinand W. Peck, of Chicago, the League receives an annual endowment of $150, to be awarded to the honor contestants as follows: First Honor, $100; Second Honor, $50.

CENTRAL DEBATING LEAGUE.

The Central Debating League is composed of the debating associations of the University of Michigan, the University of Minnesota, Northwestern University, and the University of Chicago. Its purpose is to discuss in public leading questions of the day and in this way to develop ready and useful speakers.

The four universities are arranged in two groups for the semi-final debates, which are held the second Tuesday in January. On the first Friday in April in each year the winners from the groups meet in a final debate in the city of Chicago.

Revell-Peck Testimonials.—Through the agency of Mr. Alexander H. Revell and Mr. Ferdinand W. Peck, of Chicago, the League is guaranteed an annual endowment of $200, to be distributed as follows: $150 to the side winning in the debate; $50 to the losing side.

PENNSYLVANIA-MICHIGAN CONTESTS.

Arrangements for debates between the University of Michigan and the University of Pennsylvania have been made for the years 1899 and 1900. The contests will be held on the first Friday in March; the first in Ann Arbor, the second in Philadelphia.

UNIVERSITY ORATORICAL ASSOCIATION.

The University Oratorical Association was organized by students of the Department of Literature, Science, and the Arts, and of the Department of Law, under the guidance of the Professor of Elocution and Oratory, to foster an interest in oratory and debate, and also to take part in the annual contests of the Northern Oratorical League and of the Central Debating League.

At the annual oratorical contest held the third Friday of March, the students who take first and second honors respectively are designated to represent the University as orator and alternate in the annual contest of the Northern Oratorical League, and are also awarded testimonials, as follows: First Honor, the Chicago Alumni Medal and $75; Second Honor, $50. In 1898 the first and second honors were awarded respecively to Charles Simons and Montie Lyons Wiers.

At the annual debating contest held the last Friday in January, the students receiving the first, second, and third honors, respectively, are designated to represent the University in the annual contest of the Central Debating League. They are also awarded testimonials, as follows: First Honor, $70; Second Honor, $50; Third Honor, $30.

Chicago Alumni Medal and Testimonial.—The Chicago Alumni Association of the University of Michigan offers annually a bronze medal and a testimonial of seventy-five dollars for excellence in oratory. The medal, designed by Mr. Louis H. Sullivan, of Chicago, is given to the student who is awarded the first honor in the annual oratorical contest.

Ferry Testimonial.—By the generosity of Mr. Dexter M. Ferry, of Detroit, a testimonial of $150 has been provided for the debaters who win places on the Pennsylvania-Michigan contest, to be distributed as follows: First Honor, $70; Second Honor, $50; Third Honor, $30.

OTHER UNIVERSITY ORGANIZATIONS.

Lecture Association.—The Students' Lecture Association provides each year, at a low price for admission, an attractive series of lectures and other entertainments.

Choral Union.—The Choral Union is an organization of students and others, for the study and practice of choral music under the direction of the Professor of Music in the University, and for the promotion of general musical culture. Under its auspices, and with the cooperation of the University Musical Society,* the following course of concerts is announced for the year 1898–99:

I. Choral Union Concert, with Chicago Festival Orchestra.
II. Piano Recital: Alexander Siloti.
III. Violin Recital: Willy Burmester.
IV. Song Recital: Ben Davies.
V. Organ Recital: Frederic Archer.
VI, VII, VIII, IX, X. May Festival: a series of five concerts on three successive days in May.

The Columbian Exposition Organ, which has been purchased for the University and is now known as the Frieze Memorial Organ, in memory of the late Professor Henry Simmons Frieze, is used in this course of concerts. It is also used at the regular vesper services.

Other Organizations.—Several organizations of University officers and students are maintained for the reading of papers and the holding of conferences on topics of interest that do not fall within the scope of ordinary class-room work; and some of them also aim to secure each year speakers of prominence to give public addresses on subjects germane to the purpose of the organization.

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*The University Musical Society is a body corporate under the laws of the State of Michigan. It has no organic connection with the University, though its membership is restricted to past and present University officers and students. This Society has established the University School of Music in Ann Arbor, in which systematic instruction is given in vocal and instrumental music, such as the University cannot undertake to provide. A series of ten chamber concerts is included in its annual programme. Catalogues of the school can be had by applying to Professor A. A. Stanley.

The students of the Department of Law arrange annually for a celebration of Washington's birthday. The address in 1898 was given by President Elisha Benjamin Andrews, of Brown University.

RELATION OF STUDENTS TO THE CIVIL AUTHORITIES.

Students are temporary residents of the city, and, like all other residents, are amenable to the laws. If guilty of disorder or crime, they are liable to arrest, fine, and imprisonment. A rule of the University Senate provides that if a student is arrested, or is convicted by the civil authorities, he shall be cited to appear before the Faculty of the department in which he is matriculated, and shall be liable to suspension or expulsion.

FEES AND EXPENSES.

Matriculation Fee.—Every student before entering any department of the University is required to pay a matriculation fee. This fee, which, for a citizen of Michigan, is ten dollars, and for a person who comes from any other State or country, twenty-five dollars, is paid but once, and entitles the student to the privileges of permanent membership in the University.

Annual Fee.—In addition to the matriculation fee, every student has to pay an annual fee for incidental expenses. This fee is paid the first year of residence at the University, and every year of residence thereafter. Resident graduates are required to pay the same annual fee as undergraduates. The annual fee in the several departments of the University are as follows:

Department of Literature, Science, and the Arts: for Michigan students, thirty dollars; for all others, forty dollars.*

Department of Engineering: for Michigan students, thirty-five dollars; for all others, forty-five dollars.*

Department of Medicine and Surgery: for Michigan students, thirty-five dollars; for all others, forty-five dollars.†

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* An annual fee of ten dollars is required from all graduates who are granted the privilege of pursuing studies for an advanced degree *in absentia*.

† Graduate students who pursue special advanced laboratory courses in the Department of Medicine and Surgery, are required to pay, in addition to the ordinary laboratory expenses, a fee of ten dollars for each course taken.

Department of Law: for Michigan students, thirty-five dollars; for all others, forty-five dollars.

School of Pharmacy: for Michigan students, thirty-five dollars; for all others, forty-five dollars.

Homœopathic Medical College: for Michigan students, thirty-five dollars; for all others, forty-five dollars.

College of Dental Surgery: for Michigan students, thirty-five dollars; for all others, forty-five dollars.*

The matriculation fee and the annual fee must be paid at the beginning of the college year. A by-law of the Board of Regents provides that no student or graduate shall be allowed to enjoy the privileges of the University until he has paid all fees that are due.

Fee for Special Entrance Examinations.—In the Department of Literature, Science, and the Arts, and in the Department of Engineering, an applicant for admission who desires to take the entrance examinations at a time not announced in the University Calendar is required to pay to the Treasurer a fee of five dollars before permission to take the examinations can be granted him.

Laboratory Expenses.—Students who pursue laboratory courses of study are required to pay for the materials and apparatus actually consumed by them. The deposits required in advance are different for the different courses, ranging from one to twenty dollars. The laboratory expenses of students will vary with their prudence and economy. Experience has shown that in the chemical laboratory the average expense for all courses is about one dollar and twenty cents a week.

Demonstration Courses.—A fee of ten dollars is charged for each of the demonstration courses given in the Department of Medicine and Surgery.

Gymnasium Expenses.—A charge of two dollars a year is made for the rental of a locker.

Diploma Fee.—The fee for the diploma given on graduation is ten dollars, and the by-laws of the Board of Regents prescribe that no person shall be recommended for a degree until he has paid all dues, including the fee for diploma.

Fees in Summer Schools.—The fees in the Summer Schools vary with the amount and character of the work taken. For further information, consult the chapters relating to these schools on subsequent pages.

Other Expenses.—Students obtain board and lodging in private families for from three to five dollars a week. Clubs are also formed in which the cost of board is from one dollar and a half to two dollars and a half a week. Room rent varies from seventy-five cents to two dollars a week for each student. The annual expenses of students, including clothing and incidentals, are, on the average, about three hundred and seventy dollars. The University does not undertake to furnish manual labor to students; yet a few find opportunities in the city for remunerative labor.

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* A further charge of three dollars a year is made against each student in the College of Dental Surgery to cover the cost of certain special supplies provided by the University.

There are no dormitories and no commons connected with the University. Students on arriving in Ann Arbor can obtain information in regard to rooms and board by calling at the office of the Secretary of the University.

Department of Literature, Science, and the Arts.

The Department of Literature, Science, and the Arts owes its name to a provision in the legislative act under which the University was organized in the year 1837. In this department the aim is to cover the broad field of general university study of the ancient and the modern languages and literatures, of history, philosophy, mathematics, science, and the liberal arts, as distinguished from the more special work of the professional schools in engineering, medicine, law, pharmacy, and dentistry. To this end it provides a large number of courses of instruction, from which the candidates for the several degrees offered may make selection. Provision is also made for students who wish to take special courses, or to pursue miscellaneous studies, without being candidates for a degree. The conditions on which such students are admitted are stated on page 51.

The Graduate School established in connection with this department is under the direction of an Administrative Council, appointed from the Faculty of the department.

A description of the Summer School connected with this Department is given in a subsequent chapter.

The academic year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1899, to June 21, 1900).

REQUIREMENTS FOR ADMISSION.

[For admission to advanced standing, see page 49.]

[For admission of students not candidates for a degree, see page 51.]

[For admission of graduate students, see the chapter on the Graduate School, page 127.]

Applicants for admission as undergraduates who intend to become candidates for a degree, must be at least sixteen years of age, and must present satisfactory evidence of good moral character. They must bring credentials from their last instructor, or from the last institution with which they have been connected. These credentials must be presented to the Dean of the Department, at his office in University Hall, at the time application for admission is made.

Unless admitted on diploma (see page 53), any student who desires to become a candidate for a degree must pass examinations in the subjects named in *some one* of the four groups of requirements described in detail below. To meet the requirements in any one of the groups four years of preparatory study will ordinarily be necessary. Certain requirements in *English*, in *History*, in *Mathematics*, in *Physics*, and in *Botany*, (described in detail on the following pages in sections 1 to 5 under Group I), are common to all the groups. Beyond these common requirements the groups differ from one another as follows:

In Group I the additional requirements comprise a preparation in the ancient languages covering four years of study of *Latin* and two years of *Greek*.

In Group II the additional requirements comprise four years of Latin together with two years of *French* or two years of *German*. The applicant has the privilege of choosing which of the two modern languages he will offer.

In Group III the amount of language study in the additional requirements is reduced to four years in all, but, as an offset to this reduction, two years of study in other subjects are required, namely, one year of *United States History* and one year of *Chemistry*.

In Group IV the amount of language study in the additional requirements is still further reduced to two years. To compensate for this reduction, the applicant must present the year of *United States History* and the year of *Chemistry*, as in Group III, and, in addition, a year of *English History* and a year of *English Literature*.

Accredited graduates of the English course of a diploma school and such other persons as shall pass an examination in all the requirements of Group IV, with the exception of the requirement in a foreign language, may be admitted as special students with the right to make up the additional requirement and become candidates for a degree.

The courses of study offered in the University presuppose an adequate preparation on the part of the student, and it will, therefore, be necessary for a person who wishes to earn a particular degree to arrange his preparatory work with that end in view.* For example, a person who intends to enter at once on the course of study prescribed for the degree of Bachelor of Arts, must be prepared on the admission requirements of Group I. Those who intend to take the degree of Bachelor of Philosophy may present the subjects named in Group I, in Group II, or in Group III (provided four years of Latin are offered as the requirement in foreign language). Group III or Group IV gives suitable preparation for work leading to the degree of Bachelor of Science or of Bachelor of Letters.

The requirements of the several groups in detail are as follows:

GROUP I.

In Group I the subjects on which applicants for admission will be examined are as follows:

1. **English.**—*Grammar.*—Selections for analysis and parsing will be set, arranged to test the applicant's knowledge of the leading facts of English Grammar. To meet this requirement, a review of the subject should be had during the last year of the preparatory course.

Composition and Rhetoric.—The purpose of the examination in composition is to test the applicant's ability to write good English. To this end he will be asked to write two essays of not less than two hundred words each, one upon a subject drawn from the books mentioned below, and the other upon a subject drawn from his experience or observation. The language of these essays must be grammatical and clear. The spelling, punctuation, and capitalizing must be correct. The applicant must show ability to discriminate in the use of words and to construct well organized sentences and paragraphs. A topical outline should accompany each essay.

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*The degree ultimately taken by the student will be determined by the particular set of requirements for graduation, described on pages 114 to 117, that he may complete

As preparation for this requirement, sustained and regular practice in writing is earnestly recommended. The student should prepare numerous written exercises throughout the four years of the high-school course, and a sufficient number of these exercises should be corrected by the teacher and revised by the student to secure the desired accuracy. The subjects upon which the student writes should not be drawn exclusively from literature; a considerable proportion of them should be taken from the student's every-day experience; and topics should be so distributed as to give proper training in the various types of discourse, namely, discription, narrative, argument, and exposition. The student should be grounded in the essentials of rhetoric, but those principles should receive emphasis which are most likely to be of service to him in his practice in writing, such as the principles of sentential structure, paragraphing, and the outlining of the essay. The corrections of stock specimens of bad English is not recommended, and will form no part of the entrance requirement.

It is further recommended that the reading of English classics and the memorizing of notable passages, both in prose and poetry, should form a regular exercise throughout the whole preparatory period. This is all-important for the development of a correct taste in language and literature.

The books, from which subjects for compositions will be chosen in the years named, are here given. The applicant should make himself familiar with the plot, incidents, and characters of each work. Equivalents will be accepted.

1899. Chaucer's *The Knight's Tale*, or Dryden's *Palamon and Arcite;* Milton's *Paradise Lost*, Books I and II; Pope's *Iliad*, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's *The Vicar of Wakefield;* Scott's *Ivanhoe;* DeQuincey's *Revolt of the Tartars;* Cooper's *The Last of the Mohicans;* Lowell's *The Vision of Sir Launfal;* Hawthorne's *The House of Seven Gables.*

1900. Chaucer's *The Knight's Tale*, or Dryden's *Palamon and Arcite;* Milton's *Paradise Lost*, Books I and II; Pope's *Iliad*, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's *The Vicar of Wakefield;* Scott's *Ivanhoe;* De Quincey's *Revolt of the Tartars;* Cooper's, *The Last of the Mohicans;* Macaulay's *Essay on Milton;* Burke's *Conciliation with the Colonies.*

1901 and 1902. Shakespeare's *Merchant of Venice* and *Macbeth;* Milton's *Lycidas, Comus, L'Allegro, and Il Penseroso;* Burke's *Conciliation with the Colonies;* Macaulay's *Essays on Milton and Addison;* Pope's *Iliad*, Books I, VI, XXII, and XXIV; The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's *The Vicar of Wakefield;* Coleridge's *The Ancient Mariner;* Scott's *Ivanhoe;* Cooper's *The Last of the Mohicans;*

Tennyson's *The Princess;* Lowell's *The Vision of Sir Launfal;* George Eliot's *Silas Marner.*

English Literary History.—In addition to the books just named, it is expected that several other English Classics will be read each year. These readings should be connected, in reasonable measure, with the lives and characters of the authors read and with the history of their times. A good knowledge of the chronological order and of the leading characteristics of the principal modern English writers should be aimed at. Care should be taken not to overload the text of these classics with a mass of irrelevant and petty learning. Many of the "school classics" now in use are over-edited.

2. **History.**—General History as presented in such a work as Myers's General History.

3. **Mathematics.**—*Algebra.*—Fundamental Rules, Fractions, Simple Equations, Involution and Evolution, the Calculus of Radicals, and Quadratic Equations, as given in Olney's Complete School Algebra, or an equivalent in other authors.

Geometry.—Plane, Solid, and Spherical Geometry as given in Beman and Smith's Plane and Solid Geometry, or an equivalent in other authors.

N. B.—It is very desirable that High Schools whose graduates are received on diploma arrange their courses so as to include a portion of both Algebra and geometry in their last preparatory year. Students who do not come from diploma schools should take a similar review if they expect to succeed in the study of mathematics in the University.

4. **Physics.**—An amount represented by Carhart and Chute's Elements of Physics. Laboratory work in physics is earnestly advised, though not required; but students who have completed a course in laboratory practice may expect to derive advantage from it if they take work in the physical laboratory in the University (see page 90). It is expected that a full year will be given to preparation in physics.

5. **Botany.**—Laboratory work for half a year with occasional recitations and review exercises. The methods followed in Spalding's Introduction to Botany, or in Bergen's Elements of Botany, may serve to indicate the kind of work required.

6. **Latin.**—*Grammar.*—A thorough preparation in the elements of Etymology, Syntax, and Prosody.

Prose Composition.—Applicants will be asked to translate into Latin a passage of connected English narrative, based upon some portion of the Caesar or Cicero read. As a text-book, Jones's, Collar's, or Daniell's is recommended.

Reading.—Four books of Caesar's Gallic War; six select orations of Cicero; and nine books of Virgil's Æneid. For books 7–9 of the Æneid, 1,500 lines of Ovid may be substituted. The books named may serve to indicate the amount and kind of text that may most profitably be made the basis of a thorough study in preparing for the work of the University. It should be remembered that the University desires ***mastery of Latin;*** the choice of selections studied is of secondary importance. Applicants for admission in Latin will be tested in the interpretation of passages of moderate difficulty outside the range of works commonly used in preparatory schools.

Four years of daily recitation should be given to the preparatory work in Latin. Special care should be taken with the training in Prose Composition. It is hoped that many schools will continue, as heretofore, to prepare students in the whole of the Æneid, or an equivalent. Students entering with this preparation will receive a certain amount of credit toward graduation.

The Roman method of pronouncing Latin is used at the University.

7. **Greek.**—*Grammar.*—Goodwin's or Hadley's. The inflections must be thoroughly mastered.

Prose Composition.—Jones's Exercises, with special reference to the writing of Greek with the accents, and to the general principles of syntax. Woodruff's Greek Prose Composition is taken as an equivalent.

Reading.—Three books of Xenophon's Anabasis and two books of Homer.

The so-called continental sound of the vowels and diphthongs, and pronunciation according to the written accents, are preferred.

To meet the requirements in Greek, two years of daily recitation represent the minimum amount of time.

GROUP II.

In Group II the subjects on which applicants for admission will be examined, and the requirements in each subject, are all the same as in Group I (described above), with the exception that, in place of two years of Greek, two years of French or two years of German is substituted. The requirement in each of these two languages is as follows:

French.—The whole subject of French Grammar. The applicant will be expected to read at sight easy French, and to translate correctly into French simple English sentences. The first year ought to be spent chiefly on the grammar and easy reading; and the second devoted to reading good modern French, accompanied by grammatical analysis and exercises in writing. The texts read should be chiefly narrative and conversational prose; modern, rather than classic, dramas, should be read.

German.—(1) Ability to pronounce German correctly and to take part with reasonable correctness and facility in a simple conversation upon some topic drawn from the applicant's preparatory work.

(2) Thorough familiarity with the everyday facts of the grammar, to be evinced by putting illustrative English phrases into German. (3) Ability to translate at sight a passage of fairly easy prose.

GROUP III.

In Group III the subjects of examination, and the requirements in each subject, are identical with those in Group II, except in the foreign language requirement, and in the addition of a year of United States history and a year of chemistry as a compensation for the reduction in the amount of language required.

The requirements in **English**, in **Mathematics**, in **Physics**, and in **Botany**, are the same as in Group I, described above (see pages 44–46).

In **History** the requirement is the same as in Group I, with the addition of one year's work in United States History. Johnston's History of the United States, or McLaughlin's History of the American Nation, may serve to indicate the kind and the amount of work necessary to meet the additional requirement.

In **Chemistry** the requirement is intended to cover one year's work. As a text-book, Freer's Elementary Chemistry, or an equivalent amount of work in Remsen's Introduction to the Study of Chemistry, is recommended. In either case the text should be accompanied by laboratory work.

The requirement in **foreign language** may be satisfied by (1) four years of Latin; (2) four years of French; (3) four years of German; (4) two years of Latin with two years of French; (5) two years of Latin with two years of German; or (6) two years of French with two years of German. The requirements in the several cases are as follows:

Latin.—The *four-year requirement* is the same as the requirement in Latin in Group I (see page 46).

The *two-year requirement* comprises Jones's First Latin Book or an equivalent amount in some other introductory text-book; four books of Caesar's Gallic War; and one of the orations of Cicero.

French.—The *two-year requirement* is the same as the requirement in French in Group II, above.

The *four-year requirement* comprises the *two-year requirement*, together with additional matter as follows: The third and fourth years should be spent in acquiring as great a familiarity as possible with the literature, in further practice in composition, and, where practicable, in practice in conversation. Some of the plays of Corneille, Racine, and Molière, should be read; some of the more modern plays of Hugo, Musset, and Dumas; some specimens of the best prose in history, memoirs, and essay; and some of the lyric poetry of this century. It is advised that the literature as a whole be studied in Saintsbury's or in Warren's

Primer. The student ought also to be able to express himself in French grammatically and with ease on ordinary topics.

German.—The *two-year requirement* is the same as the requirement in German in Group II, above (see page 47).

The *four-year requirement* comprises the *two-year requirement*, together with additional matter as follows: Five classical dramas to be selected from the works of Goethe, Schiller, and Lessing; Schiller's History of the Thirty Years' War, or an equivalent amount of other historical reading or of good modern fiction. The applicant will be required to write a short essay in German upon some subject taken from the works which he presents. He ought also to be able to express himself in German grammatically and with ease on ordinary topics.

GROUP IV.

In Group IV the subjects of examination, and the requirements in each subject, are similar to those in Group III, except that a year of English history and a year of English literature are added as a compensation for the reduction in the amount of language required.

The requirements in **English**, in **Mathematics**, in **Physics**, and in **Botany**, are the same as in Group I, described above (see pages 44–46).

In **Chemistry** the requirement is the same as in Group III, above.

In **History** the requirement is the same as in Group III, above, with the addition of one year's work in English history. Gardiner's Students' History of England may serve to indicate the kind and the amount of work needed to meet the requirement in English history.

In **English Literature** the requirement is intended to cover one year's work. Stopford A. Brooke's English Literature (edition of 1896), or any other manual, may be used for an outline of the subject. As much time as practicable should be given to the careful reading of representative authors in each period.

The requirements in **foreign language** may be satisfied by (1) two years of Latin; (2) two years of French; or (3) two years of German. A single year in each of two languages will not be accepted as an equivalent for two years in one language. The requirements in the several cases are as follows:

Latin.—The same as the *two-year requirement* in Latin in Group III, above.

French.—The same as the requirement in French in Group II, above.

German.—The same as the requirement in German in Group II, above.

ADMISSION TO ADVANCED STANDING.

1. A student who brings a certificate of standing from an approved college or university, showing that he has

satisfactorily completed at least two years of the curriculum of the institution from which he comes, may be admitted without examination to equal standing in this department of the University.

2. A student who has completed at least one year's college work in an approved college, and who brings an explicit and official certificate describing his course of study and scholarship, and testifying to his good character, may be admitted to advanced standing without examination, except such as may be necessary to determine what credit he is to receive for work done in the college from which he comes. Students coming from colleges whose requirements for admission are substantially equivalent to those of this department of the University may thus expect to be able to go on with their work without loss of standing.

3. A student who has not completed a year's college work in an approved college, but, previous to applying for admission to this department, has pursued studies beyond those required for admission, may be admitted to advanced standing on passing examinations in the subjects named in some one of the four groups of requirements for admission, and also in such undergraduate studies as he may ask to be credited with in advance. The examination for advanced standing, however, may be waived in the case of studies pursued in a graduate course by graduates of a diploma school, provided the work of such graduate course has been inspected and approved by the Faculty.

4. Rules relating to admission to advanced standing:

a. Any student who desires to apply for advanced standing must present his credentials and certificates before the first of November, or (if he be matriculated at the beginning of the second semester) before the fifteenth of March.

b. Any student who applies for advanced standing on the conditions stated in paragraphs (1) and (2), above, must present his credentials and certificates to the Dean of the Department.

c. Any student, whether he intends to become a candidate for a degree or to pursue select studies, who applies for advanced standing on the conditions stated in paragraph (3), above, must present to the Registrar a statement showing the amount of work done in the subjects in which credit is asked. The Registrar will then furnish him a blank form for presentation to the professors in charge of the several subjects named in the blank.

d. Credits must be secured, and the blanks must be returned to the Registrar, before the fifteenth of December. or (if the student be matriculated at the beginning of the second semester) before the tenth of April.

e. No credit will be given for advanced standing after the dates named in (*d*).

f. No credit will be given in any subject for high school work unless the subject has been pursued in the high school for at least one year.

g. An account once closed cannot be reopened without special permission of the Faculty.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE.

Persons who desire to pursue studies in this department, and do not desire to become candidates for a degree, are admitted on the following conditions:

1. All persons under twenty-one years of age must pass the entrance examinations in some one of the four groups described on pages 44 to 49.

2. Persons over twenty-one years of age must show that they have a good knowledge of English and are otherwise prepared to pursue profitably the studies they may desire to take up.

3. Should a student who enters under the preceding provision (2) subsequently become a candidate for graduation, he must pass all the examinations for admission required of

such a candidate, at least one year previous to the time when he proposes to graduate.

4. Students not candidates for a degree who wish credit for studies pursued before admission are referred to the rules relating to advanced standing given above.

TIME OF EXAMINATION.

The examination for admission to the Department of Literature, Science, and the Arts, will be held on Thursday, Friday, and Saturday, September 21, 22, and 23, 1899. Applicants will not be examined at any other time except on payment of a special fee of *five dollars.*

As the examination begins at 8 A. M. on Thursday, it will be necessary for all applicants for admission on examination to present their credentials to the Dean of the Department, at his office, on Wednesday, September 20, between the hours of 9 and 5, and receive from him papers admitting to the examination.

The examinations in the several subjects will be in writing, and will be held in Tappan Hall in accordance with the schedule given below.

SCHEDULE OF EXAMINATIONS FOR ADMISSION IN 1899.

	THURSDAY.	FRIDAY.	SATURDAY.	
	Sept. 21.	Sept. 22.	Sept. 23.	TAPPAN HALL.
Physics	8 A. M.	......	......	Lecture Room
Geometry	......	8 A. M.	......	Lecture Room
Algebra	......	......	8 A. M.	Lecture Room
History	10 A. M.	......	......	Lecture Room
Botany	......	10 A. M.	......	Lecture Room
English Literature	10 A. M.	......	10 A. M.	Room 10
Latin	2 P. M.	2 P. M. 4 P. M.	......	Lecture Room
German	2 P. M.	2 P. M.	......	Room 10
French	......	2 P. M.	......	Room 12
Greek	......	2 P. M.	......	Room 11
English	......	......	2 P. M.	Lecture Room
Chemistry	4 P. M.	......	4 P. M.	Lecture Room

ADMISSION ON DIPLOMA.

The privilege of sending pupils for admission on diploma is limited to schools that have been approved by the Faculty.

On request of the proper authorities the Faculty designates a committee to visit a school and report upon its condition. If satisfied from the report of the committee that the school is taught by competent instructors, and is furnishing a good preparation to meet the requirements for admission included in any one or more of the four groups described on pages 44 to 49, then the Faculty places the school on the approved list and receive its graduates, on the conditions named below, for a period not exceeding three years (inclusive of the year of visitation); reserving, however, the right to require another inspection, if, within the period specified in each case, important changes affecting the course of study in the school, or the efficiency of the instruction, seem to make an examination necessary.

The superintendent of each approved school is expected to send to the President of the University, annually, at a date not later in the year than March first, a catalogue of the school; or, if no catalogue is published, he is expected to send a statement giving the names of the teachers, the number of pupils, and a description of the courses of study.

The conditions on which a graduate of an approved school is admitted without examination are as follows:—He must present to the Dean of the Department a certificate signed by the superintendent or the principal of the school from which he comes, testifying that he has successfully completed an approved preparatory course of study, and has sustained satisfactory examinations in *all* the studies prescribed in some *one* of the four groups of requirements for admission,* and, furthermore, is recommended by the school authorities for admission to the University. This certificate will be valid for a period of fifteen months after the graduation of the student from the school.

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*See paragraph on page 44 concerning the admission of graduates of an English course.

Blank forms for the certificate named above can be obtained on application to the Dean of the Department. All graduates of approved schools who intend to enter the University in September of any year are urged to procure their certificates and send them to the Dean at as early a date as possible after graduation. If, on examination, the certificates are found satisfactory the applicant will receive from the Dean a statement entitling him to admission to the University without examination.

The schools named below have been approved by the Faculty as qualified to prepare students for admission on diploma in the groups indicated. A few of these schools were approved at a time prior to the revision of the general requirements for admission which went into effect in 1897 (see pages 44 to 49), and it is possible that some readjustments will be needed when these schools are again inspected. For the purpose of the present enumeration, however, schools originally approved for the course leading to the degree of A.B. are published as approved on Group I; and, similarly, schools originally approved for courses leading to the degrees of Ph.B., B.S., and B.L., are given as approved on Groups II, III, and IV, respectively. Unless otherwise indicated, the places named are in Michigan and the school approved is the public high school of the locality. The last column gives the year in which the term of approval expires.

	Groups.	
Adrian,	II, III.	1900
Albion,	II, III, IV.	1900
Allegan,	II, III, IV.	1899
Alpena,	II, III, IV.	1898
Ann Arbor,	All Groups.	1898
Aurora, Ill.: East Side,	II, III, IV.	1898
West Side,	II, III, IV.	1898
Austin, Ill.,	All Groups.	1899
Battle Creek	All Groups.	1898
Bay City,	All Groups.	1898
Belding,	II, III, IV.	1900

Benton Harbor,	All Groups.	1898
Benton Harbor: Normal and Collegiate Institute,	All Groups.	1898
Big Rapids,	II, III, IV.	1899
Big Rapids: Ferris Industrial Institute,	All Groups.	1899
Birmingham,	II, III, IV.	1899
Bloomington, Ill.,	All Groups.	1900
Blue Island, Ill.,	II, III, IV.	1899
Buchanan,	II.	1898
Burlington, Ia.,	II, III, IV.	1900
Cadillac,	All Groups.	1900
Calumet,	II, III, IV.	1899
Caro,	II, III, IV.	1898
Cassopolis,	II, III, IV.	1898
Cedar Rapids, Ia.,	II, III, IV.	1898
Champion,	III, IV.	1899
Charlotte,	All Groups.	1898
Cheboygan,	III, IV.	1898
Cheyenne, Wyo.,	II, III, IV.	1900
Chicago, Ill.: North Division,	All Groups.	1898
Northwest Division,	II, III, IV.	1899
South Division,	All Groups.	1899
West Division,	All Groups.	1899
Calumet,	All Groups.	1899
Englewood,	All Groups.	1899
Hyde Park,	All Groups.	1899
Jefferson High School,	All Groups.	1899
John Marshall School,	All Groups.	1899
Joseph Medill School,	All Groups.	1899
Lake,	All Groups.	1899
Lake View,	All Groups.	1899
South Chicago,	All Groups.	1899
Chicago, Ill.: Harvard School,	All Groups.	1898
Kenwood Institute,	All Groups.	1900
Lewis Institute,	All Groups.	1900
Princeton-Yale School,	All Groups.	1898
Chillicothe, O.,	All Groups.	1898
Cincinnati, O.: Hughes School,	All Groups.	1900
Cleveland, O.: Central High School,	All Groups.	1898
Cleveland, O.: University School,	All Groups.	1900
Clinton, Ia.,	All Groups.	1898
Clyde, Ill.,	II, III, IV.	1898
Coldwater,	All Groups.	1898

Constantine,	II, III, IV.	1898
Corunna,	II, III, IV.	1899
Decatur,	II, III, IV.	1899
Decatur, Ill.,	All Groups.	1900
Delafield, Wis.: St. John's Academy,	I, II, III.	1898
Denver, Col.: Manual Training High School,	II, III.	1900
Detroit,	All Groups.	1898
Detroit: Detroit School for Boys,	All Groups.	1898
Home and Day School,	II.	1898
Dexter,	II.	1899
Dowagiac,	All Groups.	1899
Duluth, Minn.,	I, II, III.	1899
Eaton Rapids,	II, III, IV.	1899
Elgin, Ill.,	All Groups.	1898
Elyria, O.,	II.	1899
Erie, Pa.,	All Groups.	1899
Escanaba,	II, III, IV.	1899
Evanston, Ill.,	I, II, III.	1900
Fenton,	II, III, IV.	1899
Flint,	All Groups.	1900
Fort Wayne, Ind.,	All Groups.	1900
Freeport, Ill.,	II, III, IV.	1899
Geneseo, Ill.,	II, III, IV.	1898
Gladstone,	III, IV.	1898
Golden, Col.,	II, III, IV.	1899
Goshen, Ind.,	II, III.	1899
Grand Haven,	II, III, IV.	1898
Grand Haven: Ackley Institute,	II.	1898
Grand Rapids,	All Groups.	1898
Greenville,	II, III, IV.	1899
Hancock,	II, III, IV.	1899
Harvey, Ill.,	II, III.	1898
Hastings,	II, III, IV.	1898
Hillsdale,	II, III.	1899
Holland,	III, IV.	1899
Holly,	All Groups.	1900
Houghton,	III, IV.	1899
Howell,	All Groups.	1898
Hudson: West Side,	II, III.	1899
Indianapolis, Ind.,	All Groups.	1898
Indianapolis, Ind.: Classical School for Girls,	I, II.	1898
Industrial Training School,	II, III, IV.	1898

Ionia,	All Groups.	1898
Iron Mountain,	II, III, IV.	1899
Ishpeming,	II, III, IV.	1899
Ithaca,	III, IV.	1899
Jackson: East Side,	II, III, IV.	1898
West Side,	All Groups.	1898
Joliet, Ill.,	II, III, IV.	1900
Jonesville,	III, IV.	1899
Kalamazoo,	All Groups.	1900
Kansas City, Mo.,	All Groups.	1899
Kendallville, Ind.,	II.	1899
Lafayette, Ind.,	I, II, III.	1899
La Grange, Ill. (Lyons township),	All Groups.	1899
Lake Linden,	II, III, IV.	1898
Lansing,	All Groups.	1900
Lapeer,	All Groups.	1900
La Porte, Ind.,	II, III, IV.	1899
Leavenworth, Kan.,	All Groups.	1898
Ludington,	All Groups.	1899
Manistee,	All Groups.	1898
Mansfield, O.,	All Groups.	1900
Marine City,	II, III, IV.	1900
Marinette, Wis.,	All Groups.	1898
Marquette,	All Groups.	1898
Marshall,	I, II, III.	1899
Mason,	II, III, IV.	1898
Maywood, Ill.,	II, III, IV.	1899
Menominee,	All Groups.	1898
Michigan City, Ind.,	All Groups.	1899
Midland,	II, III, IV.	1899
Milwaukee, Wis.: East Side,	I, II, III.	1900
South Side,	I, II, III.	1900
West Side,	I, II, III.	1900
Moline, Ill.,	All Groups.	1898
Monroe,	All Groups.	1900
Mt. Clemens,	All Groups.	1899
Mt. Morris, Ill.: Collegiate Preparatory School,	All Groups.	1900
Mt. Pleasant,	II, III, IV.	1900
Muskegon,	All Groups.	1898
Nashville,	II. III, IV.	1899
Negaunee,	II, III, IV.	1899
New York, N. Y.: Berkeley School,	All Groups.	1899

Niles,	II, III, IV.	1899
Norway,	II.	1899
Oak Park, Ill.,	All Groups.	1899
Omaha, Neb.,	All Groups.	1899
Orchard Lake: Michigan Military Academy,	All Groups.	1898
Otsego,	II, III, IV.	1898
Ottawa, Ill.,	All Groups.	1898
Owensborough, Ky.,	All Groups.	1898
Owosso,	II, III, IV.	1898
Paw Paw,	All Groups.	1898
Peoria, Ill.,	All Groups.	1900
Petoskey,	II, III, IV.	1899
Plainwell,	II. III, IV.	1899
Pontiac,	All Groups.	1900
Port Huron,	All Groups.	1898
Portland,	II, III, IV.	1898
Racine, Wis.,	II, III, IV.	1900
Racine, Wis.: Grammar School of Racine College,	All Groups.	1898
Richmond, Ind.,	All Groups.	1900
Rockford, Ill.,	All Groups.	1900
Rock Island, Ill.,	All Groups.	1900
Romeo,	All Groups.	1900
Saginaw: East Side,	All Groups.	1899
West Side,	All Groups.	1900
St. Clair,	II, III, IV.	1898
St. Johns,	II, III, IV.	1899
St. Joseph,	II, III, IV.	1898
St. Louis,	II, III, IV.	1899
St. Louis, Mo.: Hosmer Hall School,	I, II, III.	1898
Smith Academy,	All Groups.	1898
Sandusky, O.,	All Groups.	1900
Sault Ste. Marie,	II, III, IV.	1899
Schoolcraft,	II, III, IV.	1899
Sioux City, Ia.,	All Groups.	1898
South Bend, Ind.,	All Groups.	1898
Springfield, Ill.,	All Groups.	1898
Sturgis,	III, IV.	1900
Tacoma, Wash.,	II, III, IV.	1899
Taylorville, Ill.,	III.	1900
Tecumseh,	II, III, IV.	1899
Three Rivers,	All Groups.	1899

Toledo, O.,	All Groups.	1898
Traverse City,	II, III, IV.	1900
Troy, O.,	All Groups.	1898
Union City,	All Groups.	1899
Wayne,	IV.	1899
West Bay City,	II, III, IV.	1898
West Des Moines, Ia.,	All Groups.	1899
Wyandotte,	II, III, IV.	1899
Ypsilanti,	All Groups.	1898

Total, 187 Schools.

COURSES OF INSTRUCTION.

[For courses in the Department of Medicine and Surgery and in the Department of Law which are open to students in the Department of Literature, Science, and the Arts, see pages 110 to 113.]

The Courses of Instruction are subject to change from time to time. At the opening of each academic year, a special Announcement is issued, giving full information concerning the courses offered for the year, and the days, hours, and places of lecture, recitation, and laboratory work. From the courses offered in the various branches of learning, the student is allowed to make his choice, under regulations prescribed by the Faculty (see page 122).

The courses announced for the year 1898–99 are described below. The amount of credit toward graduation assigned to each course is indicated by the expressions *one hour, two hours,* etc., an *hour of credit* being given for the satisfactory completion of work equivalent to one exercise a week during one semester. Lectures and recitations are usually one hour in length, but in laboratory work, drawing, and other practical exercises, a longer attendance is required in order to secure an hour of credit.

For convenience of reference a few courses are included that are not ordinarily open to undergraduates, and for some of these no hours of credit are given.

GREEK.*

All students of Greek, except those who are admitted to advanced standing, are required to pursue Courses 1 and 2 before passing on to the other courses. The Teachers' Courses are open only to those who have completed Courses 1, 2, 3, 4, and either 5*a* or 5*b*, and at least five hours additional of elective work; they are a prerequisite for the teacher's diploma and for a recommendation to teach Greek. Courses 7*b*, 11, 14, 18, 19, 21, are primarily for graduate students, but are open also to undergraduates of exceptional proficiency.

FIRST SEMESTER.

1. Selected Orations of Lysias. Xenophon's Symposium. Three sections. *Four hours.* Professor PATTENGILL and Dr. WAIT.

4. Demosthenes. Studies in the Attic Orators. Two sections. *Four hours.* Professor PATTENGILL and Dr. WAIT.

6*a*. Teachers' Course. Lectures on Greek Grammar. *Two hours.* Professor D'OOGE.

7*b*. Seminary in Tragedy. Interpretation of the Oresteia of Aeschylus, with special reference to the principles of Greek dramatic art, and the chief problems of textual criticism. *Three hours.* Professor D'OOGE.

8. History of Greek Art from the Beginning to the Roman Period. Gardner's Handbook of Greek Sculpture and Tarbell's History of Greek Art are made the basis of a more general study. *Three hours.* Professor D'OOGE.

[10. Introductory Course in Plato; the Apology and the Gorgias. *Two hours.* Professor D'OOGE.

Course 10 is omitted in 1898–99, but may be expected in 1899–1900.]

11. Studies in Plato's Republic. *Two hours.* Professor D'OOGE.

12. Thucydides, Books VII and VIII. *Three hours.* Professor PATTENGILL.

[14. The Legal Orations of Isaeus and Demosthenes, with special reference to Attic Law and Judicial Procedure. *Three hours.* Professor PATTENGILL.

Course 14 is omitted in 1898–99, but may be expected in 1899–1900].

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* **School of Classical Studies at Athens.**—This University, through the generosity of some of its friends, is a contributor to the support of the American School of Classical Studies at Athens. The School affords facilities for archæological and classical investigation and study in Greece, and graduates of the Department of Literature, Science, and the Arts of this University are entitled to all its advantages without expense for tuition. Professor M. L. D'Ooge was director of the School for 1886–87.

18. Introduction to Greek Epigraphy and Reading of Inscriptions. *Two hours.* Dr. WAIT.

SECOND SEMESTER.

2. Homer, Odyssey. Secs. I and II, Books I-XII. Sec. III, Books XIII-XXIV. *Three hours.* Secs. I and II, Dr. WAIT. Sec. III, Professor PATTENGILL.
3. History of Greek Literature. Two sections. *One hour.* Dr. WAIT.
5. Dramatic Poetry. This course may be elected as 5*a* or 5*b*.
   5*a*. Euripides, Iphigenia in Tauris; Aristophanes, the Frogs. *Four hours.* Professor D'OOGE.
   5*b*. Sophocles, Oedipus Tyrannus. Aristophanes, the Clouds. *Four hours.* Professor PATTENGILL.

6*b*. Teachers' Course. Greek Writing. *Two hours.* Dr. WAIT.

9. The Bucolic Poets. This course may be elected as 9*a* or 9*b*.
   9*a*. Theocritus. *Three hours.* Professor PATTENGILL.
   9*b*. Bion and Moschus. *One hour.* Professor PATTENGILL.
13. Pindar, the Olympian and Pythian Odes. Bacchylides. *Three hours.* Professor D'OOGE.
15. Greek Antiquities. Lectures on the Monuments and the Private Life of the Ancient Athenians. Illustrated by steriopticon views. *One hour.* Professor D'OOGE.
16. Modern Greek. Selections from the most characteristic modern Greek writers. *Two hours.* Professor D'OOGE.

[17. The Greek Minor Poets. *Three hours.* Professor PATTENGILL.

Course 17 is omitted in 1898–99, but may be expected in 1899–1900.]

[19. Introduction to Homer. A study of the peculiarities of the Epic Dialect and the Homeric Verse. *Three hours.* Professor D'OOGE.

Course 19 is omitted in 1898–99, but may be expected in 1899–1900.]

[20. Lucian. A course in rapid reading. *Two hours.* Professor D'OOGE.

Course 20 is omitted in 1898–99, but may be expected in 1899–1900.]

[21. The Greek Dialects. Reading of Cauer's Delectus Inscriptionum Graecarum. Professor D'OOGE.

Course 21 is omitted in 1898–99, but may be expected in 1899–1900.]

LATIN.

Courses 1 and 2 must precede all the rest.

In order to increase the range of work offered to advanced students, several of the courses in Latin are given in alternate years, new courses being introduced as opportunity is thus afforded.

Students who wish a recommendation to teach Latin must satisfactorily complete Courses 8, 9 or 19, 11, 12, 21, 22.

Courses 1, 2, 3, 4, 5, 6 are intended primarily for undergraduates; Courses 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, are for graduates and undergraduates; Courses 23, 24, 25, 26, 27, 28 are primarily for graduates.

FIRST SEMESTER.

1. Cicero, De Senectute and De Amicitia. Latin writing. Seven sections. *Three hours.* Dr. DENNISON, Dr. GRANRUD, Mr. JEFFERS, Mr. HADZSITS, and Mr. STURGIS.

3. Roman Literature. Selections from representative authors. Four sections. *Four hours.* Professor ROLFE, Assistant Professor DRAKE, and Dr. DENNISON.

5. The Letters of Pliny. Interpretation of Selected Letters, with a study of Roman life and society at the end of the first century, A. D. *Three hours.* Professor ROLFE.

7. Roman Law. History of legislation to the time of Justinian. The Institutes of Justinian. *Three hours.* Assistant Professor DRAKE.

9. Historical Proseminary. Study of historical subjects from the sources. Septimius Severus and his successors. *Two hours.* Assistant Professor DRAKE.

9*a*. Roman Political Antiquities. Lectures. This course deals with the development of the Roman constitution to the end of the Republic. Special attention is given to the problems that arose in the transition from the Republic to the Empire, and to the political views of Cicero and his contemporaries. *One hour.* Dr. GRANRUD.

11. Latin Writing. Two sections. *Two hours.* Professor ROLFE.
Course 11 is introductory to Course 12. The principal aim is to secure correctness of expression and a feeling for idiom. The course may profitably be taken by students whose work in the Latin writing of Course 1 has been of high grade.

13. Juvenal and Persius. Interpretations and lectures. *Two hours.* Professor KELSEY.

[15. Seneca. Selections from the Epistles. *Three hours.* Professor KELSEY.
Course 15 is omitted in 1898–99.]

17. Latin Grammar. Lectures on the phonology and morphology of the language, with an outline of the syntax scientifically considered. *Three hours.* Professor ROLFE.

[19. Roman Political Antiquities. Lectures and reports on collateral reading. *Two hours.* Assistant Professor DRAKE.

Course 19 is omitted in 1898–99.]

21. Teachers' Course. Interpretation of Caesar's Gallic War, with studies in the syntax and military antiquities. *Three hours.* Professor KELSEY.

Course 21 is open only to those who receive special permission.

21*a*. Studies in Caesar. *Two hours.* Professor KELSEY.

Course 21*a* is open only to those who receive special permission.

23. Report on the Progress of Research. Analysis and criticism of important articles in the domain of the Latin language and literature, Latin grammar and lexicography, Roman history and Roman archæology and antiquities, by members of the faculty and members of the Latin Seminary. Professors KELSEY and ROLFE and Assistant Professor DRAKE.

25. Seminary. The Roman Satirists. Professor KELSEY.

Course 25 is open to graduate students only.

27. Study of Roman Coins. Professor KFLSEY.

Course 27 is open to graduate students only.

SECOND SEMESTER.

3. Selections from Catullus. Livy, Books I, XXI, and XXII. Six sections. *Four hours.* Dr. DENNISON, Dr. GRANRUD, Mr. JEFFERS, Mr. HADZSITS, and Mr. STURGIS.

4. Horace. Selections from the Odes, Satires, Epistles. Studies in Roman Antiquities. Four sections. *Four hours.* Professor ROLFE and Assistant Professor DRAKE.

[6. Christian Latin. Interpretation of selections from the early Latin writers of the Christian church, with illustrative lectures upon Christian archæology and antiquities. *Three hours.* Mr. MEADER.

Course 6 is omitted in 1898–99.]

8. Introduction to Classical Philology. Lectures. A brief outline of the history and present condition of classical studies is given, followed by an extended discussion of the methods employed in classical philology. Attention is also given to the bibliography of the subject. *Three hours.* Professor KELSEY.

8*a*. Introduction to Latin Palæography. Lectures on the various styles of writing found in Latin manuscripts, with exercises in reading from facsimilies. *One hour.* Dr. DENNISON.

Courses 1 and 2 m
In order to incr
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Students w
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Courses 1, 2,
Courses 7, 8,
graduate
rily for

of Roman Archæ-
sculpture and painting in
of Roman
hours. Professor KELSEY.

accompanied by readings in
Three hours. Professor ROLFE

given not only to correctness of expres-
of style and the finer distinctions of the
mited to those whose work in Course 11 has
ade.

Two hours. Professor ROLFE.

Reading of inscriptions of different periods
and fac-similes. Interpretation of inscriptions
special reference to the study of Roman life and society.
hours. Professor KELSEY.

Course 16 is omitted in 1898–99.]

Ovid. Fasti. Studies in Roman topography and mythology. Three hours. Professor ROLFE.

Course 18 is omitted in 1898–99.]

20. Proseminary in Latin Grammar. Studies in Syntax. *Two hours.* Professor ROLFE.

22. Teachers' Course. Study of Virgil. *Three hours.* Professor KELSEY.

24. Reports on the Current Literature of Latin Philology. Continuation of Course 23. Professors KELSEY and ROLFE and Assistant Professor DRAKE.

26. Seminary. The Roman Satirists. Continuation of Course 25. Professor KELSEY.

Course 26 is open to graduate students only.

28. Study of Roman Coins. Professor KELSEY.

SANSKRIT.

Before beginning the study of Sanskrit, the student should have pursued courses in Greek and Latin for at least four semesters or, instead of either Greek or Latin, Germanics of the early period.

FIRST SEMESTER.

1. Beginners' Course. Grammar, and exercises in translation and composition. Text books: Perry's Sanskrit Primer and Whitney's Grammar. *Three hours.* Dr. WAIT.

SECOND SEMESTER.

2. Interpretation of the prose selections contained in Lanman's Sanskrit Reader, with elementary studies in the comparative morphology of the more important cognate languages. *Three hours.* Dr. WAIT.

HELLENISTIC GREEK.

FIRST SEMESTER.

1. New Testament. Gospel of John, including grammatical study of the peculiarities of Hellenistic Greek and historical introduction to the book and the Apostolic period. Text-books: Westcott and Hort's Greek New Testament, revised edition with introduction by Ph. Schaff; Thayer's Winer's New Testament Grammar; Thayer's Greek-English Lexicon. *Two hours.* Professor CRAIG.

SECOND SEMESTER.

2. Septuagint. Introductory Lectures with selected readings from the historical and prophetical books. Apocrypha—Maccabees, Books I and II. Text-books: Vetus Testamentum Graece by L. Van Ess, or the Old Testament in Greek by H. B. Swete, Vols. I–III. Grammar and Lexicon as in Course 1, and Liddell and Scott's Lexicon. *Two hours.* Professor CRAIG.

HEBREW.

Graduate students who wish to elect a Semitic language as one of the subjects leading to a higher degree, are required to complete Courses 1 and 2 in Hebrew, or an equivalent thereto in some branch of Semitics, before entering on the advanced work.

FIRST SEMESTER.

1. Genesis. Baer and Delitzsch's Text. Harper's Elements of Grammar; Craig's Hebrew Word Manual. *Three hours.* Professor CRAIG.
3. Prophetic Literature: Amos and Isaiah. Study of the nature and content of prophecy in its literary, historical, and ethical aspects. Text-books: Hebrew Bible, Driver's Hebrew Moods and Tenses. *Two hours.* Professor CRAIG.

SECOND SEMESTER.

2. Deuteronomy, Joshua, I Samuel, Ruth, Jonah. Theile's Biblia Hebraica. Davies's Lexicon. Müller, Outlines of Hebrew Syntax. *Three hours.* Professor CRAIG.

4. The Book of Job, including study of the literary structure and critique of the dominant ideas. Text-books: Baer and Delitzsch's Text and Haupt's Polychrome Edition (text by Siegfried). *Two hours.* Professor CRAIG.

HEBREW LITERATURE.

FIRST SEMESTER.

1. Lectures. Introduction to the study of the historical and prophetical books of the Old Testament, with special reference to the last results of Assyrian and Babylonian research. The lectures are largely historical and treat also of the origin and character of Hebrew institutions. *Two hours.* Professor CRAIG.

Course 1 is open to all students. No knowledge of the Semitic languages is required.

ASSYRIAN.

FIRST SEMESTER.

1. Introduction to Easy Historical Inscriptions from the Ninth Century, B.C., with study of the Grammar. Text-book: Delitzsch's Assyrische Lesestücke, dritte Auflage; Meissner, Chrestomathie *Three hours.* Professor CRAIG.
3. The Babylonian Stories of Creation; the Deluge and the War of Marduk against Tiamat; lectures on the Cosmology of the Babylonians; Inscription of Tiglathpileser I, cir. 1120 B. C. *Two hours.* Professor CRAIG.
5. Seminar in Sumerian. *Two hours.* Professor CRAIG.

SECOND SEMESTER.

2. Historical Inscriptions. Selections from the Cuneiform Inscriptions of Western Asia (R. I—V). Professor CRAIG.
4. Religious Literature. Texts: King's "The Prayers of the Lifting up of the Hand" and Craig's "Religious Texts." Professor CRAIG.

ARABIC.

FIRST SEMESTER.

1. Introductory Course. Grammar and reading. Text-books: Socin's Arabic Grammar (English ed.) and Brünnow's Chrestomathy. *Two hours.* Professor CRAIG.
2. Selected Suras from the Quran with introductory lectures on the life of Muhammed and Muhammedanism. *Two hours.* Professor CRAIG.

SEMITIC HISTORY.

SECOND SEMESTER.

1. General Lecture Course. The beginnings of history and civilization: the Babylonians, Assyrians, Hebrews, Phœnicians, Arabians, Egyptians. *Two hours.* Professor CRAIG.

Course 1 is open to all students of the University. It is based upon the monuments and offers in outline a history of these ancient peoples, sketching their early organization, forms of government, social and religious life, art, science, and literature, showing the conspicuous part they have performed in the history of the world, and the dominance of their influence in our own era. The lectures are illustrated by 200 lantern views, 200 stereopticon views, numerous photographs, photolithographs, and original tablets and casts.

FRENCH.

Courses 1 and 2 must precede all others. Students required to take more than eight hours of French are allowed to select from other courses subject to the approval of the instructor.

FIRST SEMESTER.

1. Elementary Course. Grammar and easy reading. Eight sections. *Four hours.* Dr. EFFINGER, Mr. FRANÇOIS, Dr. BOURLAND, and Dr. THIEME.

2*a*. Syntax and Analysis. First course in composition. *Two hours.* Assistant Professor DE PONT.

3. Composition and Translation from English into French. *Three hours.* Mr. FRANÇOIS.

Course 3 is intended for students who want a practical knowledge of the language; it is required of all who intend to take a Teacher's Diploma in French.

6. Critical Prose Writings of the Nineteenth Century. Sainte-Beuve; Brunetière; Taine. *Two hours.* Dr. EFFINGER.

8. French Classic Dramas. Four sections. *Three hours.* Assistant Professor LEVI, Dr. EFFINGER, Dr. BOURLAND, and Dr. THIEME.

12. La Fontaine's and Florian's Fables. Advanced practice in composition and conversation. Comparative study and analysis of the authors. *Two hours.* Assistant Professor DE PONT.

Course 12 must be preceded by Courses 5 and 16, and by a three-hour course in reading.

13. French Lyrics. La Lyre Française. *Three hours.* Assistant Professor DE PONT.

Course 13 is open to students who have had fourteen hours of French, including Course 16.

14. Seminary. French Grammar and Syntax based on Brunot's Grammaire Historique. *Two hours.* Dr. BOURLAND.

Course 14 is open only to those who receive special permission; it is required of all who intend to take a Teacher's Diploma in French.

16. Pronunciation Drill. *Two hours.* Assistant Professor DE PONT.

18. Study of Old French. *Two hours.* Assistant Professor LEVI.

19. History of French Literature of the Eighteenth Century. Lectures, reports, and readings. *Two hours.* Assistant Professor LEVI.

Course 19 is open only to those who receive special permission.

20. Modern French Prose. Musset, Mérimée, Sand, etc. Three sections. *Two hours.* Assistant Professor LEVI, Mr. FRANÇOIS, and Dr. THIEME.

Course 20 is not open to students who have more than eight hours credit in French.

22. Dramatists of the Eighteenth Century, from the Classical to the Romantic Schools. Seminary. Regnard; Marivaux; Destouches; etc. *Three hours.* Assistant Professor DE PONT.

Course 22 is open to students who have had Course 8 and three hours more. Ability to pronounce and to understand French is desirable.

24. French Literature of the Sixteenth Century. Lectures, recitations, and essays. *Two hours.* Dr. THIEME.

Course 24 is open only to those who receive special permission.

30. Précieux et Précieuses. A study of French Society in the Seventeenth Century. Readings and occasional lectures. *Two hours.* Dr. EFFINGER.

Course 30 is open only to those who receive special permission.

33. History of French Literature of the Nineteenth Century. Lectures, reports, and readings. *Two hours.* Assistant Professor LEVI.

SECOND SEMESTER.

2. Elementary Course. Grammar and reading continued. Eight sections. *Four hours.* Dr. EFFINGER, Mr. FRANÇOIS, Dr. BOURLAND, and Dr. THIEME.

4. Scientific Reading. La Nature. *Four hours.* Assistant Professor DE PONT.

5. Advanced Composition. Continuation of Course 3; intended as preparatory to seminary work. *Three hours.* Assistant Professor DE PONT.

7. Classic French Prose. Pascal, Bossuet, La Bruyère, Sévigné. Four sections. *Three hours.* Assistant Professor LEVI, Dr. EFFINGER, Dr. BOURLAND, and Dr. THIEME.

9. Montaigne. *Two hours.* Dr. EFFINGER.

10. Poetry of the Nineteenth Century. Lamartine, Musset, Victor Hugo. *Two hours.* Assistant Professor DE PONT.

Course 10 is open only to those who receive special permission.

11. Prose Writers of the Eighteenth Century. Sec. I, Rousseau, Contrat Social and Selections. Sec. II, Voltaire, Montesquieu, Diderot. *Three hours.* Sec. I, Dr. THIEME. Sec. II, Mr. FRANÇOIS.

Course 11 is open only to those who receive special permission

15. Seminary. Victor Hugo. Dramas. *Two hours.* Assistant Professor DE PONT.

Course 15 is conducted in French, and is open only to those who have had Course 12 or its equivalent.

17. Teachers' Course. *Two hours.* Assistant Professor LEVI.

Course 17 is open only to those who receive special permission.

21. Contemporary French Drama. *Two hours.* Dr. THIEME.

23. Study of Old French. *Two hours.* Assistant Professor LEVI.

25. History of French Literature of the Seventeenth Century. Lectures, reports, and readings. *Two hours.* Assistant Professor LEVI.

Course 25 is open only to those who receive special permission.

26. Historical Morphology. *Two hours.* Dr. BOURLAND.

27. Didactic, Narrative, and Satirical Poetry. Boileau; Voltaire. *Two hours.* Dr. BOURLAND.

31. A Study of the History of French Fiction. Reading and lectures. *Two hours.* Dr. EFFINGER.

Course 31 is open only to those who receive special permission.

ITALIAN.

FIRST SEMESTER.

2. Continuation of Course 1. Tasso. *Three hours.* Assistant Professor LEVI.

4. Dante, La Vita Nuova. *One hour.* Dr. EFFINGER.

SECOND SEMESTER.

1. Grandgent's Italian Grammar. Easy Prose. *Three hours.* Assistant Professor LEVI.

Course 1 is open only to those who have completed Courses 1 and 2 in French.

3. Dante, Divina Commedia. Lectures and recitations. *Two hours.* Assistant Professor LEVI.

SPANISH.

FIRST SEMESTER.

1. Edgren's Spanish Grammar. Easy Prose. *Three hours.* Dr. BOURLAND.

   Course 1 is open only to those who have completed Courses 1 and 2 in French.

3. Calderon, El Alcalde de Zalamea. *Two hours.* Dr. BOURLAND.

SECOND SEMESTER.

2. Continuation of Course 1. *Three hours.* Dr. BOURLAND.
4. Cervantes, Don Quixote. *Two hours.* Dr. BOURLAND.

GERMAN.

The required work in German is all included in Courses 1, 2, 3, 4, which should be taken in the order of the numerals. The student must take, for the elementary requirement of eight hours, Courses 1 and 2; for the advanced requirement of eight hours, Course 3 and one of the options designated 4*a*, 4*b*, 4*c*. Advanced electives especially recommended to students preparing to teach German are Courses 5_1, 6_1 (or 5_2, 6_2), 9, 10, 11, 12, 13, 14.

FIRST SEMESTER.

1. Elementary Course. Pronunciation, grammar, and easy readings, with practice in speaking and writing German. Thomas's German Grammar. Six sections. *Four hours.* Professors HENCH and HEMPL, Dr. FLORER, Dr. ROEDDER, Dr. BOUCKE, and Dr. FLUEGEL.
3. Modern Prose, narrative and dramatic, with practice in speaking and writing German. Ten sections. *Four hours.* Assistant Professor WINKLER, Dr. MENSEL, Dr. FLORER, Dr. ROEDDER, Dr. BOUCKE, and Dr. FLUEGEL.
5. Third year Electives. This course may be elected as 5*a*, 5*b*, etc.

   5*a*. Goethe's Götz von Berlichingen, Leiden des jungen Werthers, and Schiller's Räuber. *Three hours.* Dr. ROEDDER.

   5*b*. Schiller's Wallenstein with extracts from the Geschichte des dreissigjährigen Kriegs. *Three hours.* Assistant Professor WINKLER.

   5*c*. Schiller's Philosophic Writings. *Two hours.* Assistant Professor WINKLER.

   5*d*. Scientific Prose. *Two hours.* Dr. FLORER.

   5_1. German Composition. Two sections. *Two hours.* Dr. ROEDDER and Dr. FLEUGEL.

   5_2. German Themes. *Two hours.* Dr. MENSEL.

7. Goethe's Faust, Part I. Thomas's edition. Lectures and recitations. *Two hours.* Assistant Professor WINKLER.

9. Introduction to Middle High German. Lectures and recitations with assigned readings. Paul, Mittelhochdeutsche Grammatik, 4te Aufl., and Bachmann, Mittelhochdeutsches Lesebuch. *Three hours.* Professor HENCH.

11. Modern German Sounds. Lectures and assigned readings. Hempl, German Orthography and Phonology. *Two hours.* Dr. MENSEL.

13. History of German Literature (I). From the Earliest Times to the End of the Middle Ages. Lectures and readings from Max Müller's German Classics. *Two hours.* Professor HENCH.

15. German Romanticism. Lectures and assigned readings. *Two hours.* Assistant Professor WINKLER.

17. The Literature of the Sixteenth Century. Lectures and reading of selections from Braune's Neudrucke deutscher Litteraturwerke des XVI and XVII Jahrhunderts. *Two hours.* Dr. FLORER.

19. The History of German Civilization. Lectures and reading of selections from Freytag's Bilder aus der deutschen Vergangenheit. Günther, Deutsche Kulturgeschichte. *Three hours.* Dr. BOUCKE.

21. Proseminary in Modern German Literature. The Storm and Stress Movement. *Two hours.* Assistant Professor WINKLER.

SECOND SEMESTER.

2. Elementary Course continued. Grammar, descriptive prose, and short stories, with practice in speaking and writing German. Six sections. *Four hours.* Professors HENCH and HEMPL, Dr. FLORER, Dr. ROEDDER, Dr. BOUCKE, and Dr. FLUEGEL.

4. Plays of Goethe, Lessing, and Schiller, with collateral prose reading and practice in speaking and writing German. This course may be elected as 4*a*, 4*b*, or 4*c*.

   4*a*. Goethe's Egmont. Four sections. *Four hours.* Assistant Professor WINKLER, Dr. MENSEL, Dr. BOUCKE, and Dr. FLUEGEL.

   4*b*. Lessing's Minna von Barnhelm and Emilia Galotti. Three sections. *Four hours.* Dr. MENSEL, Dr. FLORER, and Dr. BOUCKE.

   4*c*. Schiller's Wilhelm Tell and Jungfrau von Orleans. Three sections. *Four hours.* Dr. FLORER, Dr. ROEDDER, and Dr. FLUEGEL.

6. Third year Electives. This course may be elected as 6*a*, 6*b*, etc.

   6*a*. Goethe's Iphigenie, Tasso, and Hermann and Dorothea. *Three hours.* Dr. MENSEL.

6*b*. Lessing's Nathan der Weise, Anti-Goeze, and Erziehung des Menschengeschlechts. *Three hours.* Dr. FLORER.

6*c*. Laokoon. A study of Lessings essay with comparison of the critiques by Herder and Goethe. *Two hours.* Assistant Professor WINKLER.

6*d*. Historical Prose. *Two hours.* Dr. ROEDDER.

6_1. German Composition. Continuation of Course 5_1. Two sections. *Two hours.* Dr. ROEDDER and Dr. FLUEGEL.

6_2. German Themes. Continuation of Course 5_2. *Two hours.* Dr. MENSEL.

8. Goethe's Faust, Part II. Thomas's edition. *Two hours.* Assistant Professor WINKLER.

10. Methods of teaching Modern Foreign Languages. Lectures and reports. *Two hours.* Professor HENCH.

12. German Syntax. Lectures and reports upon assigned topics. Wunderlich, Der deutsche Satzbau; and Erdmann-Mensing, Grundzüge der deutschen Syntax. *Three hours.* Professor HENCH.

14. History of German Literature (II). Modern Period. *Three hours.* Assistant Professor WINKLER.

16. German Romanticism. Continuation of Course 13. *Two hours.* Assistant Professor WINKLER.

18. Old Saxon. Lectures and recitations. Gallee, Altsächsische Grammatik; and Behaghel, Heliand. *Two hours.* Dr. ROEDDER.

20. German Folk-lore. Lectures and recitations. E. H. Meyer, Deutsche Volkskunde. *Two hours.* Dr. BOUCKE.

22. Proseminary in Middle High German. Minnesang's Frühling and Walther von der Vogelweide. *Two hours.* Professor HENCH.

GOTHIC.

FIRST SEMESTER.

1. Lectures on Phonology and Morphology, and Reading of the Gospels. Text-book: Streitberg's Gotisches Elementarbuch. *Two hours.* Dr. MENSEL.

2. The Epistles. Heyne. Ulfilas, 9te Aufl. *Two hours.* Dr. MENSEL.

SCANDINAVIAN.

FIRST SEMESTER.

2. The Elder Edda. Lectures on mythology, heroic legend, and metre. Jonsson, Eddalieder, Altnordische Textbibliothek, 2-3. *Two hours.* Professor HENCH.

SECOND SEMESTER.

[1. Old Icelandic. Introductory course. Lectures and recitations. Kahle's Altisländisches Elementarbuch. *Two hours.* Professor HENCH.

Course 1 is omitted in 1898–99.]

ENGLISH PHILOLOGY AND GENERAL LINGUISTICS.

FIRST SEMESTER.

1. Middle English. Chaucer. *Two hours.* Professor HEMPL.

3. Old English (Anglo-Saxon) for Beginners. Two sections. *Two hours.* Professor HEMPL.

[5. Old-English Syntax. Professor HEMPL.

Course 5 must be preceded by Course 3. It is omitted in 1898–99.]

7. The History of the English Language. Lectures on important factors in the history of the language, together with the investigation of the cause and process of certain changes in usage. *Two hours.* Professor HEMPL.

[9. Historical English Grammar. Professor HEMPL.

Course 9 is omitted in 1898–99.]

SECOND SEMESTER.

2. Principles of Linguistic Science. Lectures on important phases of the life and growth of language, together with the study of some of the simpler problems of comparative philology. *Two hours.* Professor HEMPL.

[4. The Elements of Phonetics. Professor HEMPL.

Course 4 is omitted in 1898–99.]

6. Spoken English, with special reference to American English. A study of colloquial English as distinguished from the English of books and artificial speech, with the object of determining some of the principles governing speech-mixture and the formation of dialects. *Two hours.* Professor HEMPL.

[8. Old-English (Anglo-Saxon) Poetry. Professor HEMPL.

Course 8 must be preceded by Course 3. It is omitted in 1898–99.]

10. Old English Phonology and Morphology. Lectures on the history of Old-English sounds and forms, together with the private reading of Old-English prose texts and the investigation of problems. *Three hours.* Professor HEMPL.

Course 10 must be preceded by Course 3.

ENGLISH AND RHETORIC.

Courses 11, 12, and 14 are conducted on the seminary plan, the classes being divided into small sections for the presentation of theses and reports, and for extempore discussion and conference. These courses are designed for advanced students only, and are usually taken by students in their last year of residence at the University.

Courses 7, 10, 10*a*, 11, 12, 14, 15, and 17 will ordinarily be found suitable for graduate students as well as for undergraduates. In the case of students who have taken these courses for their first degree, special advanced courses are provided for graduate study, after conference with the candidate. Some of the courses given in recent years are the following: The Development of the English Novel; The English Satirists of the Seventeenth and Eighteenth Centuries; The Romantic Revival in England at the close of the last century; the Pre-Shakespearian Drama in England; Shakespeare's Histories.

Students who desire to take a Teacher's Diploma in English will be expected to take Courses 7, 10, 10*a*, 11, 12, and 17.

FIRST SEMESTER.

1. Paragraph-Writing. Eight sections. *Two hours.* Mr. STRAUSS and Mr. TATLOCK.

1*a*. Theme-writing. *Two hours.* Mr. STRAUSS.

Course 1*a* is open only to those who have passed Course 1.

2. Science of Rhetoric. Essays in description and narration. Four sections. *Three hours.* Professor SCOTT.

Course 2 must be preceded by Course 1, and by Course 1 or Course 2 in philosophy. Course 1*a* is also recommended.

2*a*. Essays. Four sections. *Two hours.* Professor SCOTT.

Course 2*a* is intended for students who, having passed Course 2 in the second semester, desire to continue their work in composition. It is open only to those who receive special permission.

3. Old English (Anglo-Saxon) for Beginners. Two sections. *Two hours.* Professor HEMPL.

5. English Literature. Chaucer and his age. Two sections. *Two hours.* Mr. TATLOCK.

7. Teachers' Course. History of the English Language. *Two hours.* Professor HEMPL.

10. Principles of Literary Criticism. Lectures and discussions. *One hour.* Professor DEMMON.

Course 10 is especially designed to accompany Course 11.

11. English Literature Seminary. Study of masterpieces; More's Utopia; Bacon's Essays; Milton's Areopagitica; Carlyle's Sartor Resartus; George Eliot's Silas Marner; Spenser's Faery Queen,

Book I; Shakespeare's Sonnets; Milton's Paradise Lost; Dryden's Absalom and Achitophel; Wordsworth's Excursion; Tennyson's Princess; Browning's Soul's Tragedy; Swinburne's Atalanta in Calydon. Four sections. *Two hours.* Professor DEMMON.

Course 11 must be preceded by Courses 2 and 5.

18. Advanced Composition. *Two hours.* Professor SCOTT.

Course 18 is intended for those who are already proficient in writing, but who feel the need of practice and criticism.

21. Development of Rhetorical Theory. An historical and comparative study of the growth of rhetorical theory from Aristotle to the present time. *Two hours.* Professor SCOTT.

Course 21 is open only to graduate students.

22. Studies in the text of Shakespeare. *Two hours.* Professor DEMMON.

Course 22 is designed primarily for graduate students. The aim is to illustrate the methods of textual study as applied to a play like Hamlet, and the difficulties to be overcome in establishing a text. The McMillan Shakespeare Library affords a very full apparatus for these studies.

SECOND SEMESTER.

1. Paragraph-Writing. Four sections. *Two hours.* Mr. STRAUSS.

1*a*. Theme-Writing. Two sections. *Two hours.* Mr. TATLOCK.

See note to Course 1*a* in first semester.

2. Science of Rhetoric. Essays in exposition and argument. Four sections. *Three hours.* Professor SCOTT.

See note to Course 2 in first semester.

2*b*. Essays. Four sections. *Two hours.* Professor SCOTT.

Course 2*b* is intended for students who, having passed Course 2 in the first semester, desire to continue their work in composition. It is open only to those who receive special permission.

4. English Literature. From the Conquest to Chaucer. *Two hours.* Mr. TATLOCK.

6. English Literature. From Chaucer to Milton. Two sections. *Three hours.* Mr. TATLOCK.

6*a*. English Literature. From Milton to Wordsworth. *Three hours.* Mr. STRAUSS.

10*a*. Principles of Literary Criticism. Lectures and discussions. *One hour.* Professor DEMMON.

Course 10*a* must be preceded by Course 10. It is designed to accompany Course 12.

12. Shakespeare Seminary. Plays selected: A Midsummer Night's Dream; The Merchant of Venice; As You Like It; Twelfth Night; The Tempest; Richard III; the two parts of Henry IV; Henry V; Hamlet; Othello; King Lear, Macbeth; Coriolanus. Four sections. *Two hours.* Professor DEMMON.

Course 12 must be preceded by Course 11.

14. American Literature Seminary. Authors studied: Irving, Cooper, Bryant, Emerson, Hawthorn, Longfellow, Whittier, Poe, Holmes, Thoreau, Lowell, Taylor, Howells and James. *Two hours.* Professor DEMMON.

Course 14 must be preceded by Course 11. Representative works of the authors named are studied and compared with masterpieces of British authors, and an attempt made to discover the distinctively American element.

15. Principles of Style. Inductive study of masterpieces of English prose, with a view to verifying rhetorical principles. Lectures, readings, discussions. *Two hours.* Professor SCOTT.

Course 15 is open to those who have taken Course 2.

17. Teachers' Course. Methods of teaching English Composition and Rhetoric. *Two hours.* Professor SCOTT.

Course 17 must be preceded by Course 2.

ELOCUTION AND ORATORY.

For information regarding the University oratorical associations, and the annual contests in oratory and debate, which afford opportunity for a practical application of the principles taught, see page 36.

FIRST SEMESTER.

1. Elocution. Exercises in vocal culture, breathing, position, and technique of gesture; pronunciation and emphasis; the Rush and Delsarte philosophies; elements of Quality and Force of voice, with their applications. Delivery of short extracts from masterpieces of oratory. Two sections. *Two hours.* Professor TRUEBLOOD.

3. Study of Great Orators: Ancient Orators, and Modern Orators of Continental Europe. Lectures on methods of public address and sources of power. Study of representative selections. Preparation and delivery of speeches. *Two hours.* Professor TRUEBLOOD.

Course 3 must be preceded by Courses 1 and 2, and by Courses 1 and 2 in English.

5. Oral Discussions. Application of the principles of formal logic and elocution in debating leading questions of the day. Preparation of briefs. *Two hours.* Professor TRUEBLOOD.

Course 5 is designed to develop readiness of extemporization and is recommended to those who desire to enter the inter-collegiate debates. It must be preceded by Courses 1 and 2, by Courses 1 and 2 in English, and by a course in elementary logic.

SECOND SEMESTER.

2. Elocution. Exercises in vocal culture continued; elements of Pitch and Time with illustrations; study and application of the principles of action; delivery of short extracts from masterpieces of oratory. Two sections. *Two hours.* Professor TRUEBLOOD.

Course 2 must be preceded by Course 1.

4. Study of Great Orators: English and American Orators. Lectures. Study of masterpieces. Preparation of speeches. *Two hours.* Professor TRUEBLOOD.

Course 4 must be preceded by Courses 1, 2, and 3.

6*b*. Shakespearian Reading. Critical study and reading of two of Shakespeare's plays. *Two hours.* Professor TRUEBLOOD.

Course 6*b* must be preceded by Courses 1 and 2.

MUSIC.

The courses in music are open to students who evince sufficient musical ability to pursue them with profit. Courses 1 and 2 are introductory to the technical and critical courses, and no advanced credit will be allowed for them. Course 1*a* is open to students who possess good voices and can read readily at sight; students electing this course are required to sing at the Vesper Services from the beginning of the first semester to the spring vacation. Courses 3 to 8 are technical and represent four years' work. Courses 10*a* and 11*b* are intended primarily for graduate students, but are open to undergraduates who are fitted to do advanced work. Courses 9*a*, 9*b*, 11*a*, 11*b*, and 12 are open to students who wish to study the historical development of music, as well as its significance as an art.

FIRST SEMESTER.

1. Fundamental Principles of Musical Science. *Two hours.* Professor STANLEY.

1*a*. Choral Music. *Two hours.* Professor STANLEY.

3. Science of Harmony. *Two hours.* Professor STANLEY.

5*a*. Simple Counterpoint. *Two hours.* Professor STANLEY.

6*a*. Double Counterpoint. *Two hours.* Professor STANLEY.

7. Canon; Fugue. *Two hours.* Professor STANLEY.

9*a*. The History of Music, including Modern Opera. Lectures. *Two hours.* Professor STANLEY.

10*a*. Free Composition. Instrumentation. *Two hours.* Professor STANLEY.

11*a*. Musical Criticism. Lectures. *One hour.* Professor STANLEY.

SECOND SEMESTER.

2. Fundamental Principles of Musical Science, including Elementary Harmony. *Two hours.* Professor STANLEY.
4. Science of Harmony. *Two hours.* Professor STANLEY.

5*b*. Simple Counterpoint. *Two hours.* Professor STANLEY.

6*b*. Double Counterpoint and Simple Forms. *Two hours.* Professor STANLEY.

8. Canon; Fugue; Sonata Form. *Two hours.* Professor STANLEY.

9*b*. The History of Music. Wagner's Music Dramas. Lectures. *Two hours.* Professor STANLEY.

11*b*. Musical Criticism. Lectures. *One hour.* Professor STANLEY.

12. Music in its Ethical Relations. Lectures. *One hour.* Professor STANLEY.

HISTORY.

Courses 1 and 2, taken in the order indicated by the numbers, must precede all other courses in history. Courses 7 and 8 may, however, be taken in connection with them.

FIRST SEMESTER.

1. The General History of Europe from the fall of the Roman Empire to the close of the Middle Ages. Lectures. Quizzes on lectures and on assigned reading. *Three hours.* Mr. DOW.
2. The General History of Europe from the close of the Middle Ages to the French Revolution. Lectures and quizzes. *Three hours.* Mr. DOW.
3. The Political and Constitutional History of England to the accession of Henry VIII. Lectures. Quizzes in sections. *Three hours.* Mr. ABBOTT.
5. The Constitutional History of England to the year 1307. An advanced course for the study of the origin and growth of English administrative, legal, and parliamentary institutions, from the Anglo-Saxon invasion to the reign of Edward I, based on documents, chiefly those contained in Stubbs's Select Charters. *Three hours.* Mr. ABBOTT.

   Course 5 presupposes such knowledge of English history as may be obtained from Courses 3 and 4.
7. The Political and Constitutional History of Greece to the Roman Conquest. Text-book: Oman. Lectures. *Three hours.* Mr. ABBOTT.

11. The History of Europe since 1789. Lectures and quizzes in sections. *Three hours.* Professor HUDSON.

14. The Political and Constitutional History of the United States. Lectures. Quizzes in sections on lectures and on assigned reading. *Three hours.* Professor MCLAUGHLIN.

18. Research Work in American History, with lectures. *Two hours.* Professor MCLAUGHLIN.

Course 18 is open only to graduate students and to seniors who receive special permission.

19. Constitutional Law and Political Institutions of the United States. Text-books and lectures. *Three hours.* Professor MCLAUGHLIN.

21. English Political Institutions. Lectures. *Two hours.* Professor HUDSON.

21*a*. Supplementary to Course 21, the object being to direct the reading of students in connection with the topics covered by the lectures. *One hour.* Professor HUDSON.

23. Seminary. Gladstone and his work: with special reference to his legislative measures. *Two hours.* Professor HUDSON.

Course 23 is open only to graduate students and to seniors who receive special permission.

SECOND SEMESTER.

1. The General History of Europe from the fall of the Roman Empire to the close of the Middle Ages. Lectures. Quizzes on lectures and on assigned reading. *Three hours.* Mr. DOW.

2. The General History of Europe from the close of the Middle Ages to the French Revolution. Lectures and quizzes. *Three hours.* Mr. DOW.

4. The Political and Constitutional History of England since the accession of Henry VIII. Lectures and quizzes. *Three hours.* Mr. ABBOTT.

6. The Constitutional History of England during the Seventeenth Century. An advanced course for the study of the struggle between the Stuart kings and the Parliament, based on Gardiner's Constitutional Documents of the Puritan Revolution, and similar material. *Three hours.* Mr. ABBOTT.

Course 6 presupposes such knowledge of English history as may be obtained from Courses 3 and 4.

8. The Political and Constitutional History of Rome to the fall of the Roman Empire. Text-book, supplemented by lectures. *Three hours.* Mr. ABBOTT.

12. Present Problems of European Politics. Lectures. *Two hours.* Professor HUDSON.

Course 12 must be preceded by Course 11.

12*a*. Supplementary to Course 12. Quiz on lectures and on assigned reading. Two sections. *One hour.* Professor HUDSON.

13. American Colonial History. Lectures and assigned reading. *Three hours.* Professor MCLAUGHLIN.

15. The Political and Constitutional History of the United States. Lectures. Quizzes in sections on lectures and on assigned reading. *Three hours.* Professor MCLAUGHLIN.

Course 15 is a continuation of Course 14.

17. Research Work in the History of the United States. *Two hours.* Professor MCLAUGHLIN.

Course 17 is open only to graduates and to seniors who receive special permission.

20. Topical Work in American History. *One hour.* Professor MCLAUGHLIN.

Course 20 is open only to students who receive special permission. Candidates for the teacher's diploma in history are expected to elect this as one of their courses.

22. The Political Institutions of Germany, France, Switzerland, and other European countries. Lectures. *Two hours.* Professor HUDSON.

22*a*. Supplementary to Course 22, the object being to direct the reading of students in connection with the topics covered by the lectures. *One hour.* Professor HUDSON.

24. Seminary. Russia and its advance in Europe and Asia. *Two hours.* Professor HUDSON.

Course 24 is open only to graduate students and to seniors who receive special permission.

PHILOSOPHY.

The courses in philosophy are not open to first-year students. Courses 1, 2*a*, 2*b*, 3, 4, 7, 8, 14, 15, 17, 25, 26 are primarily for undergraduates. The other courses are for both undergraduates and graduates. Students should consult with the instructors before making elections.

Courses of special value to philosophical students are also given in the departments of Greek, Latin, French, German, Italian, English Literature, History, Pedagogy, Political Economy, Mathematics, Physics, Physiology, and Biology.

The Philosophical Society holds regular meetings throughout the entire year. The meetings are conducted largely by the students, though at some of them addresses are given by members of the Faculty or by persons connected with other institutions.

The greater part of the philosophical library of the late Professor George S. Morris is available for use in the seminary room by graduates and special students engaged in research.

FIRST SEMESTER.

I. Introductory Course.

1. Philosophical Introduction. Part I, first half of semester. Meaning and Scope of Philosophy. Lectures, exercises, discussions. Text-book: Wenley's Outline Introductory to Kant's Critique of Pure Reason. Part II, second half of semester. *Either* (*a*) Elements of Logic, or (*b*) Elements of Psychology. Lectures, exercises, discussions. Text-books: (*a*) Minto's Logic Inductive and Deductive; (*b*) Titchener's An Outline of Psychology. *Three hours.* Part I, Professor WENLEY and Dr. TOWER; Part II (*a*), Dr. REBEC; Part II (*b*), Dr. PILLSBURY.

Course 1 is also given in the second semester.

II. Courses in History of Philosophy.

3. History of Ancient and Mediæval Philosophy. Lectures, reading, theses. *Three hours.* Assistant Professor LLOYD.

5. Plato's Republic. Collateral reading and theses. Text-books: Davies and Vaughan's translation; Bosanquet's Companion to the Republic. *Two hours.* Dr. REBEC.

7. British Philosophy. Lectures and assigned reading of Locke, Berkeley, and Hume. *Two hours.* Dr. REBEC.

[8. Philosophy in America. Edwards and the theological period; the New England school; influence of the Scottish school and of Mr. Spencer; modern movements in psychology and systematic philosophy. Dr. REBEC.

Course 8 is omitted in 1898–99, but may be expected in 1899–1900.]

9. Kant and the Critique of Pure Reason. Text-books: Watson's Selections from Kant, and Wenley's Introduction to the Critique. Discussion, reading, theses. *Two hours.* Professor WENLEY.

13. Philosophy of History. *Two hours.* Assistant Professor LLOYD.

III. Courses in Ethics.

14. The Development of Ethical Ideas (I). Lectures on early morality; the moral conceptions of Palestine, Greece, and Rome; and the conditions into which the ethics of Christianity entered. Reading and theses. Text-books: Wenley's Preparation for Christianity in the Ancient World; Cornill's Prophets of Israel. *Two hours.* Professor WENLEY.

[15. The Development of Ethical Ideas (II). Lectures on the moral conceptions of mediævalism—the Latin Church, Monasticism, Chivalry, the Crusades; the Reformation and Renascence; and the foundations of modern ethics, with special reference to the French Revolution, the Declaration of Independence, and the Socialistic Movement. Professor WENLEY.

Course 15 is omitted in 1898–99, but may be expected in 1899–1900.]

IV. Special Courses.

19. Philosophy of Religion. Lectures, reading, reports. *Two hours.* Assistant Professor LLOYD.

20. Æsthetics. Lectures, readings, reports. *Two hours.* Dr. REBEC.

22. Graduate Seminary. (*a*) Ancient Philosophy; Professor WENLEY, Assistant Professor LLOYD, and Dr. REBEC. (*b*) History of Philosophy; Assistant Professor LLOYD. (*c*) Modern Philosophy; Professor WENLEY, Assistant Professor LLOYD, and Dr. REBEC. (*d*) Ethics and Metaphysics; Professor WENLEY, Assistant Professor LLOYD, and Dr. TOWER. (*e*) Logic and Æsthetics; Dr. REBEC. (*f*) General, Systematic, and Experimental Psychology; Dr. PILLSBURY.

Course 22 is arranged to give flexibility to the work of the more advanced students.

V. Courses in Psychology.

25. Beginners' Course in Experimental Psychology. Text-book; Sanford's Laboratory Course. *Three hours.* Dr. PILLSBURY.

Course 25 is open only to those who have completed Course 1 or its equivalent.

27. Second Course in Experimental Psychology. Text-book: Sanford's Laboratory Course. *Three hours.* Dr. PILLSBURY.

Course 27 is open only to those who have completed Course 25 or Course 26.

29. Genetic Psychology; Psychological development with special reference to the animal and child. *Two hours.* Dr. PILLSBURY.

Course 29 must be preceded by Course 25 or Course 26.

30. Advanced Course in Experimental Psychology. Original investigation. This course may be elected as Course 30, *two hours;* 30*a*, *three hours; or* 30*b*, *six hours.* Dr. PILLSBURY.

SECOND SEMESTER.

I. Introductory Courses.

1. Philosophical Introduction. Same as in first semester. *Three hours.* Professor WENLEY, Dr. REBEC, Dr. PILLSBURY, and Dr. TOWER.

2a. Second Course in Logic. Text-book: Bosanquet's Essentials of Logic. *Two hours.* Dr. REBEC.

Course 2*a* should be preceded by Course 1.

2b. General Psychology. Text-books: Lloyd's Dynamic Idealism, and Külpe's Outlines of Psychology. *Two hours.* Dr. TOWER.

Course 2*b* should be preceded by Course 1.

II. Courses in History of Philosophy.

4. History of Modern Philosophy. Lectures, reading, reports, theses. *Three hours.* Assistant Professor LLOYD.

10. Hegel's System. Wallace's Prolegomena, and Logic of Hegel. *Two hours.* Professor WENLEY.

[11. Philosophy since Hegel. Professor WENLEY.

Course 11 is omitted in 1898–99, but may be expected in 1899–1900. Course 10 and Course 11 are given in alternate years.]

12. Special studies in the Philosophy of the Nineteenth Century. Philosophy since Hegel. Discussion, reading, reports, theses. *One hour.* Assistant Professor LLOYD.

Course 12 is intended to supplement Courses 10 and 11. In 1899–1900 the subject treated will be Hegel's System.

III. Courses in Ethics.

6. Aristotle's Ethics. Collateral reading and theses. Text-book: Peters's translation. *Two hours.* Dr. REBEC.

17. Ethics. General introductory course. Lectures, reading, theses. Text-book: Dewey's The Study of Ethics—A Syllabus. *Three hours.* Professor WENLEY and Assistant Professor LLOYD.

18. Special Studies in Ethics, with special reference to Metaphysics of Ethics. *One hour.* Assistant Professor LLOYD.

IV. Special Courses.

16. Political Philosophy. A critical study of society; the principles of political association and evolution; relations of political and industrial institutions to fundamental ideas of philosophy and religion; outline of the history of the theories of society; applications to present day social problems. Lectures, discussions, theses. *Two hours.* Assistant Professor LLOYD.

21. Special Æsthetics. Relation of Philosophy to the interpretation of Art, especially of Poetry. Lectures, reading, analysis of selected masterpieces. *Two hours.* Dr. REBEC.

23. Graduate Seminary. Same as in first semester. Professor WENLEY, Assistant Professor LLOYD, Dr. REBEC, Dr. PILLSBURY, and Dr. TOWER.

[24. Philosophical Implications of Movements of Thought in the Nineteenth Century. Special reference to Evolution. Professor WENLEY.

Course 24 is omitted in 1898–99, but may be expected in 1899–1900.]

V. Courses in Psychology.

26. Beginner's Course in Experimental Psychology. Text-book: Sanford's Laboratory Course. *Three hours.* Dr. PILLSBURY.

Course 26 is the same as Course 25 in first semester.

28. Second Course in Experimental Psychology. Text-book: Sanford's Laboratory Course. *Three hours.* Dr. PILLSBURY.

Course 28 is the same as Course 26 in first semester.

31. Advanced Course in Experimental Psychology. Original investigation. This course may be elected as Course 31, *two hours;* 31*a*, *three hours;* or 31*b*, *six hours.* Dr. PILLSBURY.

Course 31 is the same as Course 30 in first semester.

THE SCIENCE AND ART OF TEACHING.

Students who wish to prepare themselves for ordinary class-room duties, are advised to pursue Course 1, if they can take but one; those who propose to assume the management of high schools or graded schools, should take Course 5, in connection with Course 1. In both cases, however, it is desirable for them to pursue Course 2. The order in which Courses 1 and 2 are taken is not material. Students are recommended to take Course 1 or Course 2 before the historical courses. In general, it is not advisable for students to elect pedagogical studies until they have obtained at least 48 hours of credit. Exception to this rule may be made for good and sufficient reasons, as, for example, in the case of students who have had practical experience in teaching.

For the conditions on which the Teacher's Diploma and the Teacher's Certificate are given, see pages 119 and 120.

FIRST SEMESTER.

1. Practical Pedagogy. The arts of teaching and governing; methods of instruction and general school-room practice; school hygiene; school law. Lectures with reading. Hinsdale's How to Study and Teach History and Teaching the Language-Arts. *Four hours.* Professor B. A. HINSDALE.

3. History of Education, Ancient and Mediæval. Recitations and lectures. Text-book: Compayré's History of Pedagogy. The subjects treated in the lectures are Oriental, Greek, and Roman education, and the rise and early development of Christian Schools. *Three hours.* Professor B. A. HINSDALE.

5. School Supervision. General school management, the art of grading and arranging courses of study, the conduct of institutes, etc. Recitations and lectures. Text-book: Payne's Chapters on School Supervision. *Three hours.* Professor B. A. HINSDALE.

SECOND SEMESTER.

2. Theoretical and Critical Pedagogy. The principles underlying the arts of teaching and governing. Lectures with readings. Hinsdale's Studies in Education. *Four hours.* Professor B. A. HINSDALE.
4. History of Modern Education. Recitations and lectures. Text-book: Compayré's History of Pedagogy. The topics dealt with in the lectures are the movements of modern educational thought and practice. *Three hours.* Professor B. A. HINSDALE.
6. The Comparative Study of Educational Systems, Domestic and Foreign. Lectures. *Two hours.* Professor B. A. HINSDALE.
7. History of Education in the United States. The course deals with the salient features of the subject, from the earliest time, but particular attention is paid to the state of education in the colonies, and to the common school revival in the first half of the present century. The recent university development is also described. Lectures and reading. Hinsdale's Horace Mann and the Common School Revival in the United States and Documents Illustrative of American Educational History are subjects of examination. *One hour.* Professor B. A. HINSDALE.

POLITICAL ECONOMY AND SOCIOLOGY.

Political Economy.—The courses in political economy are classified as undergraduate, intermediate, and graduate courses. Courses 2, 3, 4, 5 are primarily designed for undergraduate students; of these, Course 2 is required for admission to all other courses except to Course 3. Course 3 should if possible precede Course 2. The intermediate courses, viz.: Courses 6, 8, 9, 11, 12, 13, 17, 18, may also be taken by any student and will count as part of the regular work of graduate students. The graduate courses viz.: Courses 25, 26, 27, 28, are not open to undergraduate students who pursue their work on the credit system, but may be taken by those who are working on the university system.

Sociology.—Work in sociology may begin with Course 19 or with Course 22. The latter should be chosen by those who care only for the practical aspects of the subject, and who intend to take only one course. Those who plan to take all the work should complete both these courses before their senior year.

FIRST SEMESTER.

2. Elements of Political Economy. Lectures and quizzes. *Four hours.* Professor F. M. TAYLOR.

5. Problems in Political Economy. Lectures and quizzes. *Four hours.* Professor ADAMS.

Course 5 treats in a cursory manner current problems in political economy. The problems studied are the following: The Railway Problem, Industrial Crises, Free Trade and Protection, Industrial Reforms, Labor Legislation, and Taxation. It is designed as the supplement of Course 2, by which it must be preceded, and is introductory to Courses 4, 6, 8, 9, 11, 12, 13, although it is not required for these courses.

9. Money and Banking. *Two hours.* Professor F. M. TAYLOR.

13. The Theory and Practice of Statistics. *One hour.* Dr. COOLEY.

Course 13 treats statistics as a method of social research, an instrument important not only to economists and statisticians but also to all who wish to qualify themselves to understand or criticise current social and political discussion.

17. Seminary in Economics. *Two hours.* Professor ADAMS.

19. Principles of Sociology. Lectures and quizzes. *Four hours.* Dr. COOLEY.

Course 19 aims at a systematic and comprehensive study of the underlying principles of social science. It embraces some historical review of the development of institutions, but is chiefly concerned with an analysis of existing society. Each student is assigned special reading and required to write a critical essay upon it.

21. Special Studies in Sociology. Reading, reports, discussions. *Two hours.* Dr. COOLEY.

25. Critical Studies in Economics and Sociology. *Three hours.* Professors ADAMS and F. M. TAYLOR and Dr. COOLEY.

Course 25 is especially intended for graduate students, but is open to seniors specializing in political economy who satisfy the instructors of their fitness for the work.

27. Current Economic Legislation and Literature. *One hour.* Professors ADAMS and F. M. TAYLOR and Dr. COOLEY.

SECOND SEMESTER.

3. History of the Development of Industrial Society. Lectures and quizzes. *Three hours.* Professor ADAMS.

Course 3 is designed to be introductory to all courses in political economy. It is not, however, required for admission to such courses. It embraces a history of English industrial society from the twelfth century to the present time, and is designed to show how modern industrial customs and rights came into existence. It is desirable that it should be preceded by Course 1 in history.

4. Principles of the Science of Finance. Text-book. Two sections. *Three hours.* Professor F. M. TAYLOR.

6. The Transportation Problem. Lectures and quizzes. *Three hours.* Professor ADAMS.

[9. Socialism. History and Theory. *Two hours.* Professor F. M. TAYLOR.

Course 9 is omitted in 1898–99.]

11. Industrial History of the United States. *Two hours.* Professor F. M. TAYLOR.

12. History of Political Economy. Text-book, with supplementary lectures and reports. *Two hours.* Professor F. M. TAYLOR.

Course 12 is important to all students specializing in political economy.

14. Seminary in Transportation. *Two hours.* Professor ADAMS.

Course 14 is open only to those who receive special permission.

22. Problems in Sociology. Lectures and quizzes. *Four hours.* Dr. COOLEY.

Course 22 embraces a study of the laws of population, the treatment of criminals, poor relief, the assimilation of immigrants, the development of great cities, and other sociological questions of present importance.

24. Special Studies in Sociology and Statistics. *Two hours.* Dr. COOLEY.

Course 24 is similar in character to Course 21. Students who have taken Course 13 and wish to follow it with practical training in statistical work have an opportunity to do so.

26. Critical studies in Economics and Sociology. Continuation of Course 25. *Three hours.* Professors ADAMS and F. M. TAYLOR and Dr. COOLEY.

28. Current Economic Legislation and Literature. *One hour.* Professors ADAMS and F. M. TAYLOR and Dr. COOLEY.

INTERNATIONAL LAW.

FIRST SEMESTER.

1. Lectures on International Law. *Two hours.* President ANGELL.

Course 1 is open only to those who have completed two courses in history.

SECOND SEMESTER.

2. History of Treaties. *Two hours.* President ANGELL.
Course 2 must be preceded by Course 1.

BIBLIOGRAPHY.

FIRST SEMESTER.

1. Historical, Material, and Intellectual Bibliography. Lectures. *One hour.* Professor R. C. DAVIS.

MATHEMATICS.

Courses 1, 2, 3, 4, 6 are identical with courses prescribed for students in the Department of Engineering. Courses 1*a*, 2*a*, 3*a*, 4*a*, to be taken in their order, are intended for other students; Course 1*a* being required for the degree of B.L., and 1*a*, 2*a* for the degrees of A.B., Ph.B., and B.S. Students so desiring may substitute Courses 1, 1*b*, 2 for the shorter Courses 1*a*, 2*a*; and Courses 3, 4, for the shorter Courses 3*a*, 4*a*.

Courses 1, 1*a*, 1*b*, 2, 2*a*, 2*b*, 3, 3*a*, 4, 4*a*, 6 are intended primarily for undergraduates; Courses 5, 7, 8, 9, 10, 12, 13, 15, 19, 20 are for undergraduates and graduates; Courses 11, 14, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 are primarily for graduates, though undergraduates of exceptional ability are admitted by special permission.

FIRST SEMESTER.

1. Algebra and Analytic Geometry (I). Four sections. *Four hours.* Mr. HALL, Mr. GODDARD, Mr. BUTTS, and Mr. WHITNEY.

1*a*. Plane Trigonometry and Algebra. Twelve sections. *Three hours.* Mr. HALL, Mr. GODDARD, Mr. BUTTS, and Mr. WHITNEY.

1*b*. Plane Trigonometry. Two sections. *Two hours.* Mr. WHITNEY.

3. Calculus. Four sections. *Five hours.* Assistant Professor MARKLEY, Mr. HALL, and Dr. GLOVER.

3*a*. Calculus (I). *Four hours.* Professor BEMAN.

5. Solid Analytic Geometry. *Two hours.* Professor BEMAN.

6. Calculus and Mechanics (II). Three sections. *Four hours.* Mr. HALL and Dr. GLOVER.

7. Projective Geometry (I). *Three hours.* Assistant Professor MARKLEY.

9. Differential Equations. *Three hours.* Professor BEMAN.

11. Theory of Functions (I). *Three hours.* Assistant Professor MARKLEY.

12. Higher Algebra (I). *Three hours.* Dr. GLOVER.

[16. Advanced Mechanics (II). *Two hours.* Professor ZIWET.
Course 16 is omitted in 1898–99.]

19. Teachers' Seminary. Algebra. *Two hours.* Professor BEMAN. Course 19 is open only to those who have completed Courses 1, 2, 3, 4, or 1*a*, 2*a*, 3*a*, 4*a*.

21. Advanced Differential and Integral Calculus (I). *Two hours.* Professor BEMAN.

[23. Theory of Substitutions (I). *Two hours.* Dr. GLOVER. Course 23 is omitted in 1898–99.]

[25. Partial Differential Equations. *Two hours.* Professor ZIWET.] Course 25 is omitted in 1898–99.]

27. Theory of Numbers(I). *Two hours.* Assistant Professor MARKLEY.

29. Theory of Invariants. *Two hours.* Dr. GLOVER.

SECOND SEMESTER.

2. Analytic Geometry (II). Five sections. *Four hours.* Mr. HALL, Mr. GODDARD, Mr. BUTTS, and Mr. WHITNEY.

2*a*. Plane Analytic Geometry. Eleven sections. *Four hours.* Mr. HALL, Dr. GLOVER, Mr. GODDARD, Mr. BUTTS, and Mr. WHITNEY.

2*b* Spherical Trigonometry. *Two hours.* Dr. GLOVER.

4. Calculus and Mechanics (I). Four sections. *Five hours.* Assistant Professor MARKLEY, Mr. HALL, and Dr. GLOVER.

4*a*. Calculus (II). *Four hours.* Professor BEMAN.

8. Projective Geometry (II). *Three hours.* Assistant Professor MARKLEY.

10. Quaternions. *Credit arranged with instructor.* Professor BEMAN.

13. Higher Algebra (II). *Three hours.* Dr. GLOVER.

14. Theory of Functions (II). *Three hours.* Assistant Professor MARKLEY.

15. Advanced Mechanics (I). *Three hours.* Dr. GLOVER.

17. Linear Differential Equations. *Two hours.* Professor BEMAN.

18. Higher Plane Curves. *Two hours.* Professor BEMAN.

20. Teachers' Seminary. Geometry. *Two hours.* Professor BEMAN. Course 20 is open only to those who have completed Courses 1, 2 3, 4, or 1*a*, 2*a*, 3*a*, 4*a*.

22. Advanced Differential and Integral Calculus (II). *Two hours.* Professor BEMAN.

[24. Theory of Substitutions (II). *Two hours.* Dr. GLOVER. Course 24 is omitted in 1898–99.]

[26. Partial Differential Equations (II). *Two hours.* Professor ZIWET. Course 26 is omitted in 1898–99.]

28. Theory of Numbers (II). *Two hours.* Assistant Professor MARKLEY.

30. Theory of Invariants (II). *Two hours.* Dr. GLOVER.

PHYSICS.

FIRST SEMESTER.

2. Heat, Electricity, and Magnetism. Lectures and recitations. *Five hours.* Professor CARHART.

   Course 2 must be preceded by Course 1 and by a course in general or in analytical chemistry.

3. Physical Laboratory Work for Beginners. This course may be elected as 3*a*, *three hours*, or 3*b*, *two hours*. Assistant Professor REED and Dr. TROWBRIDGE.

   Course 3 must be preceded by Course 1. It is also given in the second semester, and then may be accompanied by Course 1. Students presenting note-books from High School physical laboratories approved by this department, by electing 3*a* may be allowed *three hours* of credit for *two hours* of work.

5. Electrical Measurements. Lectures, recitations, laboratory work. *Three hours.* Assistant Professor REED, Dr. GUTHE, and Dr. TROWBRIDGE.

   Course 5 must be preceded by Courses 1, 2, and 3*a* or 3*b*. A knowledge of calculus is required.

6. Sound. Lectures, recitations, laboratory work. *Three hours.* Assistant Professor REED.

   Course 6 must be preceded by Course 2 and by Course 3*a* or 3*b*. A knowledge of calculus is required.

7. Electricity and Magnetism. *Three hours.* Dr. TROWBRIDGE.

   Course 7 must be preceded by Course 2. A knowledge of calculus is required.

8. Heat. Laboratory work. *Two hours.* Dr. GUTHE.

   Course 8 must be preceded by Course 2.

9. Theory of Heat: Preston. *Two hours.* Professor CARHART

13. Geometrical Optics. *Two hours.* Assistant Professor REED.

    Course 13 must be preceded by Course 1. A knowledge of calculus is required.

14. Sound. Advanced laboratory work. *Two hours.* Assistant Professor REED.

    Course 14 must be preceded by Course 6.

SECOND SEMESTER.

1. Mechanics, Sound, and Light. Lectures and recitations. *Five hours.* Assistant Professor REED.

   For Course 1 a knowledge of plane trigonometry is indispensable.

3. Physical Laboratory Work for Beginners. This course may be elected as 3*a*, *three hours*, 3*b*, *two hours*, or 3*c*, *three hours*. Assistant Professor REED, Dr. GUTHE, Mr. JONES, and Dr. TROWBRIDGE.

   See note to Course 3 in first semester. Course 3*c* is designed to prepare for the study of dynamo-electric machinery.

4. Primary and Secondary Batteries. Recitations and laboratory work. *Two hours.* Dr. GUTHE.

   Course 4 must be preceded by Courses 1, 2, 3*a* or 3*b*, and a course in general or in analytical chemistry.

10. Electricity and Magnetism. *Two hours.* Dr. TROWBRIDGE.

    Course 10 must be preceded by Course 7.

11. Theory of Light: Preston. Recitations and laboratory work. *Four hours.* Assistant Professor REED.

    Course 11 must be preceded by Course 6. A knowledge of calculus is required.

12. Electrical Measurements. Continuation of Course 5. Lectures and laboratory work. *Three hours.* Dr. GUTHE and Dr. TROWBRIDGE.

15. Light. Advanced laboratory work. *Two hours.* Assistant Professor REED.

    Course 15 must be preceded by Course 11.

16. Theories of Solutions, Electrolytes, and the Voltaic Cell. Lectures and laboratory work. *Three hours.* Dr. GUTHE.

    Course 16 must be preceeed by Course 5 and by Courses 1 and 4 in general chemistry.

17. Alternate Current Phenomena: Steinmetz. *Two hours.* Professor CARHART.

GENERAL CHEMISTRY.

Before beginning the study of general chemistry students should complete Course 1 in physics, or should have had at least a year's work in physics in a good high school. Students who enter upon the study of chemistry with the intention of acquiring more than the rudiments of the subject, should take Courses 1, 2, 3, 4, 5; these courses are also a preparation for the teaching of chemistry, and are necessary before obtaining a teacher's certificate in chemistry. The research laboratory is intended for graduates and advanced undergraduates.

FIRST SEMESTER.

1. Elementary Inorganic Chemistry. Experimental lectures and recitations. *Three hours.* Mr. HIGLEY.

   Course 1 is also given in the second semester; in 1899–1900, and thereafter, it will be given in the second semester only.

6. The History of Chemistry. Lectures. *Two hours.* Professor FREER.

Course 6 must be preceded by Courses 1, 2, 4, 5, and also requires a good knowledge of organic chemistry. The course is intended for undergraduates, but is also suitable for graduates.

12. Physical Chemistry. Laboratory work. *Credit arranged with instructor.* Dr. BIGELOW.

Course 12 is open to students well prepared in physics and chemistry; it is a continuation of Course 4.

EITHER FIRST OR SECOND SEMESTER.

2. Laboratory Work in General Inorganic Chemistry. *Credit arranged with instructors.* Mr. HIGLEY, Mr. LICHTY, and Dr. SHERMAN.

Course 2 must be preceded or accompanied by Course 1 or an equivalent. It is supplementary to Course 1 and covers in the laboratory the ground covered by lectures in Course 1. Students should elect at least five hours of laboratory work in Course 2 during the year, in order to complete the beginning work in inorganic chemistry.

3. Continuation of Course 2. Laboratory work in advanced inorganic chemistry. *Five hours.* Mr. HIGLEY, Mr. LICHTY, and Dr. SHERMAN.

Course 3 is intended as an introduction to analytical chemistry; it must be preceded by at least *five hours* in Course 2.

4. Elementary Physical Chemistry. Lectures and laboratory work. *Five hours.* Dr. BIGELOW.

Course 4 is necessary for all students who wish to acquire more than a very elementary knowledge of chemistry. The work in the laboratory covers the same ground as the lectures and includes the determination of molecular weights by all standard methods, the study of dissociation, etc. The course must be preceded by Courses 1 and 2, and either preceded or accompanied by Course 5.

7. Laboratory Research in Inorganic Chemistry. Continuation of Courses 3 and 4. *Credit arranged with instructor.* Professor FREER or Mr. HIGLEY.

Although Course 7 in intended primarily for undergraduates who have taken the regular courses in laboratory instruction given in this department, it is also intended for graduate students who have received equivalent instruction.

8. Laboratory Research in Organic Chemistry. *Credit arranged with instructors.* Professor FREER and Dr. SHERMAN.

Courses 8 and 9 are intended for advanced students. They are open only to those who receive special permission. Students electing these courses must be able to read German and French, and must have a knowledge of inorganic, organic, and analytical chemistry.

9. Laboratory Research in Physical Chemistry. *Credit arrangea with instructor.* Mr. LICHTY or Dr. BIGELOW.

See note to Course 8, above.

10. Journal Club. *One hour.* Professor FREER.

All the instructors and assistants in the department take part in the Journal Club. While it is intended for graduate students, it is also open to undergraduates who receive special permission.

11. German reading. Sight reading in current chemical literature. *One hour.* Dr. SHERMAN or Dr. BIGELOW.

Course 11 is intended for advanced students in chemistry, and is open only to those who convince the instructor of their satisfactory preparation.

SECOND SEMESTER.

1. Elementary Inorganic Chemistry. Experimental lectures and recitations. *Three hours.* Professor FREER.

5. Inorganic Chemistry, Descriptive and Experimental. *Five hours.* Mr. HIGLEY.

Course 5 must be preceded by Course 1.

13. Spectroscopic Analysis and Use of the Spectroscope. Lectures and laboratory work. *Four hours.* Mr. LICHTY.

14. Laboratory work with the Polariscope, etc. *Two hours.* 'Mr. LICHTY.

15. Physical Chemistry. Laboratory work. *Credit arranged with instructor.* Dr. BIGELOW.

The work in Course 15 is selected from the whole domain of physical chemistry, and is adapted to the special interests of advanced students.

16. Chemistry in Daily Life. Lectures. *Two hours.* Dr. SHERMAN.

ANALYTICAL CHEMISTRY AND ORGANIC CHEMISTRY.

Students who wish to obtain, at graduation, a teacher's diploma in analytical and organic chemistry are required to complete, in addition to the prescribed work in the science and art of teaching, Courses 1 and 5 in general chemistry (*ante*) and Courses 1, 4, 10 in analytical and organic chemistry.

FIRST SEMESTER.

1. Qualitative Analysis. Recitations and laboratory work. Two sections. *Ten hours.* Professor O. C. JOHNSON and Mr. BROWN.

   Course 1 must be preceded by Course 2 or 5 in general chemistry or an equivalent.

3. First Steps in Qualitative Analysis. Recitations and laboratory work. *Five hours.* Professor O. C. JOHNSON.

   Course 3 must be preceded by Course 1 or 5 in general chemistry or an equivalent. It is continued in Course 3*a* in the second semester, and the two Courses, 3 and 3*a*, together, are equivalent to Course 1.

9. Technical Examination of Gold and Silver Ores, including the Fire Assay. Laboratory work with lectures and reading. *Two hours.* Professor E. D. CAMPBELL and Mr. WHITE.

   Course 9 must be preceded by Course 4. Course 2 in mineralogy is recommended.

10. Organic Chemistry. Lectures and library studies. *Five hours.* Professor PRESCOTT.

    Course 10 must be preceded by Course 1 or 3.

21. Technical Gas Analysis. Laboratory work. *One hour.* Professor E. D. CAMPBELL and Mr. WHITE.

    Course 21 is open only to those who receive special permission.

23. Chosen Subjects in Chemistry. Lectures. *Two hours.* Dr. GOMBERG.

    Course 23 must be preceded by Course 10 and by Course 11 or 12

29. Chemistry of Beet Sugar. Laboratory work and lectures. *Three hours.* Dr. GOMBERG.

31. Chemical Technology. A study of chemical manipulations and reactions on a manufacturing scale. The chief subjects treated are: fuels, water, the acid and alkali industry, cements, glass, and the destructive distillation of coal and wood with recovery of by-products. Lectures and assigned reading. *Five hours.* Mr. WHITE.

    Course 31 must be preceded by Course 1 or 3*a*.

EITHER FIRST OR SECOND SEMESTER.

4. Quantitative Analysis. Beginning Course. Recitations and laboratory work. *Seven hours.* Professor E. D. CAMPBELL.

   Course 4 is open to those who have taken Course 1 or Course 3*a*.

5. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.

   Course 5 is open to those who have taken Course 4 and who receive special permission.

6. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.

   Course 6 is open to those who have taken Course 4 and who receive special permission. It cannot be taken at the same time with Course 5.

7. Special Methods in Iron and Steel Analysis. Continuation of Course 6. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.

8. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.

   Course 8 must be preceded by Course 5.

11. Organic Preparations. Laboratory work. *Two hours.* Dr. GOMBERG and Mr. A. CAMPBELL.

   Course 11 must be preceded or accompanied by Course 10.

11*a*. Organic Preparations. Laboratory work, continuation of Course 11. *Two hours.* Dr. GOMBERG and Mr. A. CAMPBELL.

12. Organic Preparations and Ultimate Analysis. Laboratory work. *Five hours.* Dr. GOMBERG and Mr. A. CAMPBELL.

   Course 12 must be preceded by Course 4, and preceded or accompanied by Course 10.

13. Synthetical Organic Chemistry. Laboratory work, continuation of Course 12. *Five hours.* Dr. GOMBERG and Mr. A. CAMPBELL.

15. Special Subjects in Food Analysis or in Toxicology. Laboratory work with reading. *Three, four, or five hours.* Professor PRESCOTT or Dr. GOMBERG.

   Course 15 is open only to those who have taken Course 14 and who receive special permission.

17. Original investigations in Organic Chemistry. Laboratory work and library reading. *Credit arranged with instructor.* Professor PRESCOTT.

   Courses 17 and 18 must be preceded by Courses 10 and 12, and are open only to those who receive special permission.

18. Original Investigations in Organic Chemistry. Laboratory work. *Credit arranged with instructor.* Dr. GOMBERG.

   See note to Course 17.

19. Chosen Subjects in Organic Chemistry. Laboratory and library work. *Three hours.* Professor PRESCOTT.

   Courses 19 and 19*a* must be preceded by Course 10 and by Course 11 or 12, and are open only to those who receive special permission.

19*a*. Continuation of Course 19 *Three hours.* Professor PRESCOTT.

   See note to Course 19.

22. Original Investigations in Qualitative Analysis and Applied Chemistry. Laboratory work. *Credit arranged with instructor.* Professor O. C. JOHNSON.

Course 22 must be preceded by Courses 1 and 4, and is open only to those who receive special permission.

24. Original Investigations in Qualitative Analysis and its Applications. Laboratory work and reading. *Credit arranged with instructor.* Professor E. D. CAMPBELL.

Course 24 is open only to those who receive special permission.

26. Bibliography of Quantitative Analysis. Reading and seminary work. *One hour.* Professor E. D. CAMPBELL.

Course 26 must be preceded or accompanied by one of the following courses: 5, 6, 7, 9, 24.

33. Technological Chemistry. Laboratory work on chosen subjects. *Credit arranged with instructors.* Professor E. D. CAMPBELL and Mr. WHITE.

Course 33 must be preceded by Courses 5 and 31, and by Courses 10 and 32 in addition if the subject chosen is in organic technology.

SECOND SEMESTER.

1. Qualitative Analysis. Recitations and laboratory work. *Ten hours.* Professor O. C. JOHNSON.

Course 1 must be preceded by Course 2 or Course 5 in general chemistry or an equivalent.

2. Advanced Qualitative Analysis. Continuation of Course 1, with original work. Recitations and laboratory work. *Five hours.* Professor O. C. JOHNSON.

Course 2 must be preceded or accompanied by Course 4.

3. First Steps in Qualitative Analysis. Recitations and laboratory work. *Five hours.* Professor O. C. JOHNSON.

Course 3 must be preceded by Course 1 or Course 5 in general chemistry.

3*a*. Qualitative Analysis in continuation of Course 3. Recitations and laboratory work. *Five hours.* Professor O. C. JOHNSON and Mr. BROWN.

See note to Course 3 in first semester.

14. The Chemistry of Alkaloids and the Chemistry of Fats and Oils. Lectures and laboratory work. *Seven hours.* Dr. GOMBERG and Mr. A. CAMPBELL.

Course 14 must be preceded by Courses 4 and 10.

16. Manufacture and Purification of Chemicals. Laboratory work. *Four hours.* Professor O. C. JOHNSON.

Course 16 is open to those who have completed Courses 1 and 2.

20. The Benzene Derivatives. Lectures. *Four hours.* Dr. GOMBERG.
    Course 20 must be preceded by Course 10.

28. Organic Chemistry. Lectures. *Four hours.* Professor PRESCOTT.
    Course 28 must be preceded by Course 1 or by Course 3.

[30. Organic Chemistry. Lectures and laboratory work. *Five hours.* Mr. TROWBRIDGE.
    Course 30 must be preceded by Course 1 or by Course 3; it is omitted in 1898–99.]

32. Chemical Technology. The industrial chemistry of organic compounds. Among the subjects treated are: starch, glucose, and sugar; fermentation and distillation, fats, oils, and soaps; bleaching and dyeing; tanning; paper-manufacture. Lectures and assigned reading. *Five hours.* Mr. WHITE.
    Course 32 must be preceded by Courses 10 and 31.

METALLURGY.

FIRST SEMESTER.

1. Fuel and Refractory Material; Iron and Steel. *Three hours.* Professor E. D. CAMPBELL.
    Course 1 must be preceded by Course 1 or 3 in analytical chemistry, or by Course 1 in general chemistry.

2. Micro-Metallography. The study of the microscopic structure of metals as related to their physical and chemical properties. Laboratory work with reading. *One hour.* Professor E. D. CAMPBELL.
    Course 2 is open only to those who have completed Course 1, and who receive special permission.

PHYSIOLOGICAL CHEMISTRY, BACTERIOLOGY, AND HYGIENE.

The courses in these subjects given by Professors VAUGHAN and NOVY are arranged for the most part to meet the wants of students in the Department of Medicine and Surgery, and of students who propose to study medicine in the future.

FIRST SEMESTER.

1. Hygiene. Lectures. *Three hours.* Professor VAUGHAN.
2. Bacteriology. Lectures. *Three hours.* Professor NOVY.

EITHER FIRST OR SECOND SEMESTER.

3. Bacteriology. Laboratory work, *daily for three months*, beginning the first week in October, January, and April. *Five hours.* Professor NOVY.
    Course 3 is designed especially for students who propose to study medicine and is not open to others except by permission.

3*a*. Bacteriology. Special methods. *Two hours.* Professor NOVY.
Course 3*a* must be preceded by Course 3.

3*b*. Bacteriology. Continuation of Course 3*a*. *Credit arranged with instructor.* Professor NOVY.

4. Methods of Hygiene. Analysis of water, air, soil, milk, butter, etc. Laboratory work. *Seven hours.* Professor NOVY.
Course 4 is open to those who have taken Course 1 or 3 in analytical chemistry.

5. Methods of Hygiene. Continuation of Course 4. *Seven hours.* Professor NOVY.

7. Physiological Chemistry, including Analysis of Urine. Laboratory work, *daily for three months*, beginning the first week in October, January, and April. *Five hours.* Professor NOVY.
Course 7 is open to those who have taken Courses 1 and either 2 or 5 in general chemistry, Course 1 or 3 in analytical chemistry, and Course 10 in organic chemistry.

8. Advanced Physiological Chemistry. Laboratory work and reading. *Seven hours.* Professor NOVY.

9. Original Research on the Causation of Disease. Laboratory work and reading. *Five hours.* Professor VAUGHAN.
Course 9 is designed for advanced students and is open only to those who receive special permission.

10. Original Research on the Causation of Disease. Continuation of Course 9. *Five hours.* Professor VAUGHAN.

SECOND SEMESTER.

1*a*. Hygiene. Lectures. Continuation of Course 1. *Two hours.* Professor VAUGHAN.

6. Physiological Chemistry. Lectures. *Three hours.* Professor VAUGHAN.

HYGIENE AND HOUSEHOLD ECONOMICS.

The courses given by Professor MOSHER are designed primarily for students in the Department of Literature, Science, and the Arts.

FIRST SEMESTER.

1. Personal Hygiene. Structure of the human body; phenomena of nutrition; influences which favor and retard body metabolism; foods and their adulterations, etc. *Three hours.* Professor MOSHER.

3. Household Economics. House finishing, furnishing, and cleaning; diet in health and disease; household emergencies. *One hour.* Professor MOSHER.

Course 3 should be preceded by Courses 1 and 2, although it may be taken independently.

SECOND SEMESTER.

2. (*a*) Domestic Hygiene: Air, water, soil; house building; heating, lighting, ventilating. draining, etc. (*b*) Municipal Hygiene: History of municipal sanitation; water supply of cities; sewage removal; destruction of garbage; street cleaning; sanitary construction of public buildings; school sanitation; control of contagious diseases; etc. *Three hours.* Professor MOSHER.

ASTRONOMY.

Courses 1, 2, 3, 10, 12, are elementary and cannot be counted as graduate work. A knowledge of calculus is required for all courses except 1, 2, 3, 10, 12.

FIRST SEMESTER.

1. General Astronomy. *Three hours.* Professor HALL.

5. Spherical Astronomy. *Three hours.* Professor HALL.

   In Courses 5 and 8 some standard work on spherical astronomy is rapidly read, and special subjects are given out for discussion.

EITHER FIRST OR SECOND SEMESTER.

2. Elementary Practical Course. *One hour.* Professor HALL.

   Course 2 is a continuation of Course 1.

4. Practical Astronomy. Use of sextant and transit. *Three hours* Professor HALL.

9. Extended Practical Course. *Credit arranged with instructor* Professor HALL.

SECOND SEMESTER.

8. Spherical Astronomy. Continuation of Course 5. *Three hours.* Professor HALL.

   See note to Course 5.

11. Mathematical Theory of Planetary Motion. *Three hours.* Professor HALL.

12. History of Astronomy. *Two hours.* Professor HALL.

13. Theory of Least Squares. *Two hours.* Professor HALL.

MINERALOGY.

FIRST SEMESTER.

1. Short Course. Lectures and practice. *Two hours.* Professor PETTEE.

For Course 1 an elementary knowledge of chemistry is desirable, though not required. It is intended for students who wish to get a general knowledge of some of the more common minerals. It is not introductory to Course 2. The course is also given in the second semester.

3. Advanced work along such lines as may be agreed upon. *Credit arranged with instructor.* Professor PETTEE.

Course 3 must be preceded by Course 1 or 2.

4. Determinative Mineralogy, including blowpipe analysis. Laboratory work. *Two hours.* Professor PETTEE.

Course 4 must be preceded by Course 1 or 2. It requires a knowledge of the elements of analytical chemistry.

SECOND SEMESTER.

1. Short Course. Lectures and practice. *Two hours.* Professor PETTEE.

See note to Course 1 in first semester.

2. Mineralogy and Lithology. Lectures and practice. *Five hours.* Professor PETTEE.

Course 2 is open only to those who are taking, or have taken, a course in analytical chemistry. It does not require any previous knowledge of mineralogy, but is intended for students who wish a broader knowledge of the subject than can be obtained in Course 1.

3*a*. Advanced work along such lines as may be agreed upon. *Credit arranged with instructor.* Professor PETTEE.

Course 3*a* must be preceded by Course 1 or 2.

GEOLOGY.

Courses 1, 2, 7, 10, 12 are intended primarily for undergraduates. Course 3, 4, 5, 6 are for graduate students and undergraduates who have had sufficient preparation to pursue them with advantage. Special courses will be arranged for graduates by either Professor PETTEE or Professor RUSSELL.

FIRST SEMESTER.

1. Elements of Geology—lithological, structural, dynamical. Lectures and recitations. *Three hours.* Professor RUSSELL.

3. General Palæontology. Invertebrates. Reading, lectures, laboratory work. *Three hours.* Professor RUSSELL.

Course 3 requires a knowledge of the elements of general geology.

5. Physical Geology; volcanoes, igneous intrusions, and metamorphism. Text-book, lectures, conferences, reading. *Two hours.* Professor RUSSELL.

Course 5 must be preceded by Course 1 or 7.

7. Physical Geography. Lectures and conferences on the origin and life-histories of the physical features of the United States. Lantern illustrations. Reviews of works of geography and travel. *Three hours.* Professor RUSSELL.
8. Economic Geology. *Two hours.* Professor PETTEE.

Course 8 must be preceded by Course 1 or 2 in mineralogy.

SECOND SEMESTER.

2. Elements of Geology. Historical Geology. Lectures and recitations. *Three hours.* Professor RUSSELL.
4. Palæontological Investigations. Laboratory work with reading and such instruction as the student may require. This course may be elected as 4*a*, *two hours;* 4*b*, *three hours;* or 4*c*, *five hours.* Professor RUSSELL.

Course 4 must be preceded by Course 2 or an equivalent.

6. Physical Geology; glaciers and the glacial epoch. Text-book, lectures, conferences, reading. *Two hours.* Professor RUSSELL.

Course 6 must be preceded by Course 1 or 7.

10. Physical Geography continued. Meteorology. Text-book, lectures, short thesis. *Three hours.* Professor RUSSELL.
11. Physical Geology; rocks, rock-weathering, and soils. Text-book, lectures, conferences, reading. *Two hours.* Professor RUSSELL.

Course 11 must be preceded by Course 1 or 7.

12. Dynamical, Structural, and Physical Geology. Text-book, lectures, short thesis. *Three hours.* Professor RUSSELL.

Course 12 is designed primarily to meet the wants of students in the Department of Engineering, but may be elected by any student having sixty hours credit.

GENERAL BIOLOGY.

FIRST SEMESTER.

1. Elements of Biology. A study of typical species of plants and animals with reference to structure, function, development, and relationship. Lectures and laboratory work. *Five hours.* Mr. JOHNSTON, Dr. POLLOCK, and Mr. TIMBERLAKE.

See notes to Courses 1 and 1*a* in botany and to Courses 1 and 1*c* in zoology.

SECOND SEMESTER.

2. Elements of Biology. Continuation of Course 1. Lectures and laboratory work. In botany, the laboratory work is on flowerless plants to gymnosperms; in zoology, on a vertebrate type (frog.) *Five or six hours.* Professor NEWCOMBE and Dr. LILLIE.

Course 2 must be preceded by Course 1. See also notes to Courses 1*b* and 1*d* in zoology and to Courses 2 and 2*a* in botany.

BOTANY.

Before entering upon the study of botany, students are required to take a semester in general biology. This should be followed by Courses 2, 4, 5 in botany.

Courses 1, 2, 3, 4, 6 are intended primarily for undergraduates. Courses 5, 7, 8, 9, 10, 11, 12, 13, 14 are for graduates and undergraduates. Courses 15, 16, 17, 18, 19, 20 are primarily for graduates, but undergraduates are admitted to them by special permission. Students preparing to teach botany should complete Courses 1, 2, 4, 5, 8, 13, 14.

FIRST SEMESTER.

1. Elements of Biology [Plant Life]. A study of the properties and activities of protoplasm, developmental history, differentiation and evolution of structure and function, and relation to the environment. The material for study is selected from simple organisms, chiefly algæ and fungi. Lectures and laboratory work. *Three hours.* Dr. POLLOCK and Mr. TIMBERLAKE.

Course 1 is equivalent to the botanical part of Course 1 in general biology.

1*a*. Lectures, demonstrations, or conferences on groups, the types of which are studied in Course 1. *One hour.* Dr. POLLOCK.

Course 1*a* must be preceded or accompanied by Course 1.

3. Elements of Structural Botany. Special attention is given to the microscopic structure of crude drugs and food substances, and to the detection of adulterations. Laboratory work and demonstrations. *Two hours.* Assistant Professor SCHLOTTERBECK.

5. General Morphology and Physiology. Cell structure, tissue structure, organography; the cell theory, mitosis, heredity; instruction in technique. Lectures and laboratory work. *Five hours.* Professor NEWCOMBE.

Course 5 is open only to students who have pursued the study of botany for at least a year.

7. Experimental Physiology. Special Problems. *Two or more hours.* Professor NEWCOMBE.

Course 7 is intended to be introductory to research. It is open only to those who receive special permission.

9. Experimental Morphology. Lectures and laboratory work upon the lower forms of algæ, including methods of cultivation, with a view to determining the factors in development and the influence of environment. This course may be elected as 9*a*, *three hours;* 9*b*, *five hours.* Dr. SNOW.

[11. Morphology and Physiology of Fungi. Lectures, reading, laboratory work, reports. *Five hours.* Professor SPALDING.

Course 11 is omitted in 1898–99.]

[13. Present Problems of Biology. Lectures on variation, selection, reproduction, heredity, and the inheritance of acquired characters with a discussion of theories and the application of biological principles. *One hour.* Professors SPALDING and NEWCOMBE.

Course 13 is omitted in 1898–99.]

15. Investigations in Physiology. This course may be elected as 15*a*, *three hours;* 15*b*, *five hours;* 15*c*, *eight hours;* 15*d*, *ten hours.* Professor NEWCOMBE.

[17. Investigations in Morphology. This course may be elected as 17*a*, *three hours;* 17*b*, *five hours;* 17*c*, *eight hours;* 17*d*, *ten hours.* Professor SPALDING.

Course 17 is omitted in 1898–99.]

19. Current Literature of Botany. *One hour.* Professor NEWCOMBE.

Course 19 constitutes a journal club in which important papers on botany are reviewed and discussed by the instructors and advanced students. All students are admitted to the meetings, but only advanced students may elect the course.

SECOND SEMESTER.

2. Elements of Biology [Plant Life]. Continuation of Course 1, embracing the alternation of generations and general biology and physiology of liverworts, mosses, ferns, and gymnosperms. Lectures and laboratory work. *Three hours.* Dr. POLLOCK and Dr. SNOW.

Course 2 is equivalent to the botanical part of Course 2 in general biology.

2*a*. Lectures, demonstrations, or conferences on groups, the types of which are studied in Course 2. *One hour.* Dr. POLLOCK.

Course 2*a* must be preceded or accompanied by Course 2.

4. Reproduction and Embryology of Flowering Plants. Lectures and laboratory work. *Three hours.* Mr. TIMBERLAKE.

6. Elements of Structural Botany. Continuation of Course 3. Lectures and laboratory work. *Three hours.* Assistant Professor SCHLOTTERBECK.

8. Experimental Physiology. A laboratory study of the relation of plants to their environment, as manifested by the phenomena of nutrition, growth, and irritability. This course may be elected as 8*a*, *three hours;* or 8*b*, *five hours.* Lectures and laboratory work. Professor NEWCOMBE.

10. Experimental Morphology. Lectures and laboratory work upon the lower forms of algæ, including methods of cultivation, with a view to determining the factors in development and the influence of environment. This course may be elected as 10*a*, *three hours;* 10*b*, *five hours.* Dr. SNOW.

[12. Morphology and Physiology of Fungi. Laboratory work, reading reports. *Five hours.* Professor SPALDING.

Course 12 is omitted in 1898-99.]

[14. The Natural Families of Plants. A review of the leading groups of plants with primary reference to relationship, distribution, and biological characters. Lectures, reading, demonstrations. *Three hours.* Professor SPALDING.

Course 14 is omitted in 1898-99.]

16. Investigations in Physiology. This course may be elected as 16*a*, *three hours;* 16*b*, *five hours;* 16*c*, *eight hours;* 16*d*, *ten hours.* Professor NEWCOMBE.

[18. Investigations in Morphology. This course may be elected as 18*a*, *three hours;* 18*b*, *five hours;* 18*c*, *eight hours;* 18*d*, *ten hours.* Professor SPALDING.

Course 18 is omitted in 1898-99.]

20. Current Literature of Botany. Continuation of Course 19. *One hour.* Professor NEWCOMBE.

ZOOLOGY.

Before entering upon the study of zoology, students are required to take a semester, and are advised to take a year, in general biology. The work done in Courses 1 and 1*b* is identical with the zoological portion of the courses in general biology. These courses together with Courses 1*a*, 1*c*, 3 are planned to meet the needs of those who have but a limited time to give to zoology, as part of a general education. While all the zoological courses are non-technical, and may properly form a part of a non-professional education, the more advanced courses may at the same time be considered as preparatory to medicine and to teaching. Courses 5, 9, 8, 8*a*, 24 are of value to students preparing to study medicine; while both these and Courses 2, 2*a* are of value to teachers. The remaining courses, 10, 12, 13, 14, 15, 16, 21, 22, 23 are advanced graduate courses and are open to undergraduates only by special permission.

Field Club.—A zoological field club, organized by students, undertakes to study the local fauna, to identify and preserve specimens, make distribution maps, and collect biological data. The coöperation of students and others interested is invited.

FIRST SEMESTER.

1. Elements of Animal Biology. A study of protoplasm, of the cell and its activities, and of the structure, development, and biology of invertebrate animal types selected to illustrate general principles. Lectures and laboratory work. *Three hours.* Mr. JOHNSTON.

Course 1 is equivalent to the zoological part of Course 1 in general biology.

1*c*. Elementary Invertebrate Zoology. Lectures, demonstrations, or conferences on the invertebrate groups, types of which are studied in Course 1. *One hour.* Mr JOHNSTON.

Course 1*c* must be preceded or accompanied by Course 1.

2. Invertebrate Zoology. The structure, classification, habits, and distribution of invertebrate animals with special reference to the influence of environment, to adaptation, and to the general principles of organic evolution. Lectures with demonstrations and conferences. *Five hours.* Dr. LILLIE.

2*a*. Comparative Anatomy of Invertebrates. Laboratory work on invertebrate types, not included in the course in general biology. *Three hours.* Dr. LILLIE.

Course 2*a* must be preceded or accompanied by Course 2.

9. Comparative Embryology of Vertebrates. Lectures and laboratory work on amblystoma and the chick, with much supplementary material. *Six hours.* Professor REIGHARD and Miss LANGDON.

Course 9 must be preceded by Course 1*b*, 1*d*.

12. Current Literature of Zoology. *One hour.* Professor REIGHARD.

In Course 12, the instructors and advanced students form a journal club which holds weekly meetings. Reports are made on important current papers and are followed by informal discussion. Although the meetings are open to all, the membership is restricted.

14. Research. Work may be arranged upon the gross anatomy, the microscopic anatomy, or the development of vertebrates or invertebrates, or upon experimental zoology. This course may be elected as 14*a*, *two hours;* 14*b*, *three hours;* 14*c*, *five hours;* or 14*d*, *ten hours.* Application should be made to Professor REIGHARD, but the work may be carried on under the direction of other members of the zoological staff.

16. Museum Work. Students desiring to carry on systematic work on special groups represented in the University Museum, are given every opportunity to do so, but must first satisfy the instructor in charge of their fitness to pursue independent work. *Credit arranged with instructor.* Application should be made to Professor REIGHARD.

22. Experimental Morphology. Laboratory work in experimental embryology and the influence of physical agents on animals. Continuation of Course 10. This course may be elected as 22*a*, *two hours; 22b, three hours;* or 22*c*, *five hours.* Dr. LILLIE.

SECOND SEMESTER.

[1*a*. Elements of Animal Biology. Continuation of Course 1.

Course 1*a* is omitted in 1898–99.]

1*b*. Elements of Animal Biology. The structure, development, and biology of a typical vertebrate (the frog). Lectures and laboratory work. *Three hours.* Dr. LILLIE.

Course 1*b* is equivalent to the zoological part of Course 2 in general biology. It is a prerequisite for Courses 8 and 9.

1*d*. Elementary Vertebrate Zoology. Lectures, demonstrations, or conferences, dealing systematically with the various vertebrate subgroups. *One hour.* Dr. LILLIE.

Course 1*d* must be preceded or accompanied by Course 1*b*. It is a prerequisite for Courses 8 and 9.

3. The Evidences and Factors of Organic Evolution. Illustrated lectures serving as an introduction to zoology. *Two hours.* Professor REIGHARD and Dr. LILLIE.

5. Mammalian Anatomy. Dissection of the cat. Laboratory work, lectures, quizzes. In the laboratory the class uses type-written copies of a descriptive anatomy of the cat prepared by Professor REIGHARD. *Six hours.* Mr. JOHNSTON.

Course 5 deals with the anatomy of a mammal (the cat) whose structure closely resembles that of man. It is meant for those who for any reason desire some knowledge of human anatomy, but who find it impossible to pursue human dissection. While it may properly form a part of a general culture course, it is of especial value to those intending to teach physiology in the secondary schools or to carry on university work in human anatomy or physiology.

8. Comparative Anatomy of Vertebrates. Lectures and laboratory work on selected forms (the skate, the perch, a tailed amphibian, the turtle, and the cat) carried on by means of typewritten directions. *Six hours.* Professor REIGHARD and Miss LANGDON.

In Course 8 the list of forms studied varies from year to year.

8*a*. Vertebrate Morphology. Advanced work in comparative anatomy or embryology. *Credit arranged with instructor.* Professor REIGHARD.

10. Experimental Morphology. Lectures reviewing recent work in experimental embryology and the influence of physical agents on animals. This course is offered in two parts, to be given in alternate years, and designated as 10*a* and 10*b*.

10*a*. The external factors of development; the action of chemical substances, light, heat, gravity, etc., on protoplasm and development. *One hour.* Dr. LILLIE.

[10*b*. The internal factors of development, the sex cells, cell lineage, isolation of cleavage products, etc. *One hour.* Dr. LILLIE.

Course 10*b* is omitted in 1898–99.]

In connection with the lectures students may elect, by special permission, laboratory work as Course 10*c*, *two hours;* 10*d*, *three hours;* or 10*e*, *five hours.*

13. Current Literature of Zoology. Continuation of Course 12. *One hour.* Professor REIGHARD.

See note to Course 12 in first semester.

15. Research. Continuation of Course 14. This course may be elected as 15*a*, *two hours;* 15*b*, *three hours;* 15*c*, *five hours;* 15*d*, *ten hours.* Application should be made to Professor REIGHARD.

21. Museum Work. Continuation of Course 16. *Credit arranged with instructor.* Application should be made to Professor REIGHARD.

[23. Cytology. A study of the structure and functions of the protozoa and of the metazoan cell. *Five hours.* Assistant Professor WORCESTER.

Course 23 is omitted in 1898–99, but may be expected in 1899–1900.]

24. Comparative Anatomy of the Vertebrate Nervous System, with special reference to the internal structure of the brain and the morphology of the cranial nerves. Lectures and demonstrations. *Two hours.* Mr. JOHNSTON.

Course 24 must be preceded by Course 1*b*, and may advantageously follow or accompany Course 5 or Course 8.

ANATOMY.

The courses in anatomy are open only to students who receive special permission.

FIRST SEMESTER.

1. Osteology. Lectures and demonstrations. *Two hours.* Dr. YUTZY.
2. Descriptive Anatomy. Lectures. *Two hours.* Professor McMURRICH.
4. Anatomy of Nervous System. Lectures. *Two hours.* Professor McMURRICH.

It is desirable that Course 4 should be preceded by Courses 2 and 3.

7. Vertebrate Histology. Lectures, reading, and laboratory work, with instructions in methods. *Five hours.* Assistant Professor HUBER.

Course 7 must be preceded by Course 1 in general biology.

EITHER FIRST OR SECOND SEMESTER.

5. Practical Anatomy. Laboratory work. *Four hours.* Professor McMURRICH and Dr. YUTZY.

See note to Course 6.

6. Practical Anatomy. Laboratory work. *Four hours.* Professor McMURRICH and Dr. YUTZY.

Courses 5 and 6 are both required in order to complete the laboratory work in human anatomy. Classes are formed three times a year and each course requires the attendance of the student every day for twelve weeks.

9. Methods of Vertebrate Histology. Laboratory work and reading. *Two hours.* Assistant Professor HUBER.

Course 9 must be preceded by Course 7 or 8.

10. Research in Vertebrate Histology. This course may be elected as 10*a*, *three hours;* 10*b*, *five hours.* Assistant Professor HUBER.

Course 10 must be preceded by Courses 7, 8, 9.

11. Microscopic Anatomy of the Central and Peripheral Nervous System and Special Sense Organs. Laboratory work and reading. This course may be elected as 11*a*, *three hours;* 11*b*, *five hours.* Professor McMURRICH and Assistant Professor HUBER.

Course 11 should be preceded by Courses 4, 7 or 8, 9.

SECOND SEMESTER.

3. Descriptive Anatomy. Continuation of Course 2. Lectures. *Two hours.* Professor McMURRICH.

8. Vertebrate Histology. Laboratory work and lectures. *Five hours.* Assistant Professor HUBER.

Course 8 covers the same ground as Course 7 and must be preceded by Course 1 in general biology.

PHYSIOLOGY.

The courses in physiology are arranged for those who intend to become physicians or dentists, those who propose to teach the subject, and those who contemplate making biology, physiology, or psychology a specialty.

Instruction is given by lectures, recitations, informal discussions, and laboratory work. In the laboratory the student learns to use the apparatus and methods employed in ordinary physiological experiments. Advanced students are given an opportunity to begin research work.

Work in physiology should be preceded by the following courses or their equivalent, viz.: Course 5 in zoology (or a course in descriptive and practical human anatomy, and lectures and laboratory work in vertebrate histology in the Department of Medicine and Surgery), Courses 1 and 2 in physics, Courses 1, 2, 5 in general chemistry, and Course 10 in organic chemistry.

FIRST SEMESTER.

1. Lectures and Recitations. *Five hours.* Professor LOMBARD.

SECOND SEMESTER.

2. Continuation of Course 1. *Five hours.* Professor LOMBARD.
3. Laboratory Work. *Two hours.* Professor LOMBARD.

   Course 3 is open only to students who have taken or are taking Course 2.
4. Physiological Experimentation. Teacher's course. *One hour.* Professor LOMBARD.

   Course 4 is open only to those who have taken Course 3.
5. Physiological Experimentation. Research work. *Two hours.* Professor LOMBARD.

DRAWING.

FIRST SEMESTER.

1. Geometrical Drawing. Four sections. *Two hours.* Mr. GOULDING.
4. Free-hand Drawing; Pencil Drawing; Pen and Ink Drawing; Sketching. Two sections. *Three hours.* Professor DENISON, Mr. WRENTMORE, and Miss HUNT.
10. Continuation of Course 8. *Two hours.* Professor DENISON and Miss HUNT.

    Course 10 must be preceded by Courses 4, 7, 8.
13. Water-Color Drawing. *Three hours.* Professor DENISON and Miss HUNT.

    Course 13 must be preceded by Course 8. It can be taken only by special permission.

SECOND SEMESTER.

5. Descriptive Geometry. Recitations and drawing. Five sections. *Four hours.* Mr. WRENTMORE and Mr. GOULDING.

   Course 5 must be preceded by Course 1.
6. Shades, Shadows, and Perspective. *Three hours.* Professor DENISON.

   Course 6 must be preceded by Course 5.

7. Free-Hand Drawing (advanced). *Three hours.* Professor DENISON and Miss HUNT.
8. Architectural and Water-Color Drawing. Two sections. *Two hours.* Professor DENISON, Mr. GOULDING, and Miss HUNT.
   Course 8 must be preceded by Course 1 or 4.
14. Stereotomy. *Two hours.* Professor DENISON.
   Course 14 must be preceded by Course 5.
16. Free-Hand Lettering. *Two hours.* Mr. WRENTMORE.
   Course 16 must be preceded by Course 1.
17. Spherical Projections. *One hour.* Professor DENISON.
   Course 17 must be preceded by Course 5.

SURVEYING, CIVIL ENGINEERING, MECHANICAL ENGINEERING, ELECTRICAL ENGINEERING, MARINE ENGINEERING, AND MINING ENGINEERING.

The courses in these subjects are arranged primarily for students in the Department of Engineering, and are described in the chapter on that department (pages 156 to 161), but they are open on certain conditions to students of the Department of Literature, Science, and the Arts.

ATHLETICS.

Classes are formed in both semesters for gymnasium work under the charge of the Director of the Gymnasium; but no credit toward graduation is given for this work.

COURSES IN PROFESSIONAL STUDY.

In some of the subjects taught in this department of the University, the instruction is substantially identical with that given in the professional schools. A student in this department, therefore, by making a proper choice of electives, may qualify himself for advanced standing in professional study; and under certain conditions explained below, he may elect, as a part of the requirements for a bachelor's degree, some of the courses given in another department. By this arrangement, and with the cooperation of the faculties of the several departments, opportunity is afforded to reduce by a year (or, possibly, in medicine by two years) the time required for earning both a collegiate and a professional degree.

COMBINED COURSE IN COLLEGIATE AND MEDICAL STUDIES.

The subjects included in the first two years of the curriculum of the Department of Medicine and Surgery are (with the exception of electrotherapeutics and the courses in regional and surgical anatomy) all provided for in the Courses of Instruction enumerated on the preceding pages (90 to 109). The character and the extent of the instruction in these subjects are not, however, in all cases identical in the two departments. The following scheme is, therefore, given to show which of the courses offered in the Department of Literature, Science, and the Arts, are accepted in the Department of Medicine and Surgery as covering the requirements in the corresponding courses given in that department. The medical courses are not, however, in all cases, accepted as covering the requirements in the Literary Department.

FIRST YEAR.

Medical Courses.	*Literary Courses.*
Anatomy and Osteology,	Anatomy: Courses 1, 2, 3, 5.
General Chemistry,	General Chemistry: Courses 1, 2.
Organic Chemistry,	Organic Chemistry: Course 28.
Laboratory Chemistry,	Analytical Chemistry: Course 3.
Physics,	Physics: Course 1.
Bacteriology,	Bacteriology: Courses 2, 3.
Histology,	Anatomy: Course 7 or 8.

SECOND YEAR.

Medical Courses.	*Literary Courses.*
Anatomy,	Anatomy: Courses 4, 6.
Physiology,	Physiology: Courses 1, 2.
Hygiene,	Hygiene: Courses 1, 1*a*.[*]
Embryology,	Zoology: Course 9.
Physiological Chemistry,	Physiological Chemistry: Courses 6, 7.

A student who intends to pursue the study of medicine after taking his bachelor's degree may shorten his total period of residence at the University by electing, as an undergraduate, the literary courses above named as accepted in the Department of Medicine and Surgery; the precise amount of time gained depending upon the amount of the required medical work he completes while enrolled as a literary student. If he wishes to arrange his work in such a way as, after receiving his bachelor's degree, to secure admission to the third year of the medical course, and so earn the two degrees in six years of study, he must complete all the above-named accepted courses before taking his first degree; and he must also make his intention known to the President of the University as early as the beginning of his third year of undergraduate work, and obtain special permission to be registered also as a student in medicine.

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[*] The courses conducted by Professor VAUGHAN are here indicated.

While the opportunity to combine collegiate and medical work is open to all students in this department of the University, it is probable that a course of study which leads to the degree of Bachelor of Science (see page 116) will be the most suitable and the most economical of time for those who intend also to take the degree of Doctor of Medicine.

A student who aims to earn the two degrees, Bachelor of Science and Doctor of Medicine, in six years will find it necessary to arrange his studies with this end in view from the beginning of his first year of residence at the University. The amount of work prescribed for the two degrees is sufficient to fill nearly all the student's time, leaving only a small number of hours free for electives. To enable such a student to plan his work intelligently and systematically, a scheme of study, covering four years, is here given. The scheme does not represent a complete prescribed course, nor the only course possible, but it is intended to show an order in which the prescribed studies may be taken to advantage. Some elective work in addition will be needed to satisfy the requirements for the bachelor's degree.

Students who wish to take advantage of the opportunity here offered for combining collegiate and medical work should consult frequently after the first year with a committee appointed to consider questions arising in this connection. This committee at present consists of Professor NOVY and Assistant Professor HUBER.

FIRST YEAR.

First Semester: French, four hours; German, four hours; English, Course 1, two hours; Mathematics, three hours; General Chemistry, Course 1, three hours.

Second Semester: French or German, four hours; Mathematics, four hours; Physics, Course 1, five hours; General Chemistry, Course 2, three hours.

SECOND YEAR.

First Semester: English, Course 1*a*, two hours; Analytical Chemistry, Course 3, five hours; General Biology, Course 1, five hours; Bacteriology, Course 2, three hours.

Second Semester: Organic Chemistry, Course 28, four hours; Zoology, Course 1*b*, three hours; Bacteriology, Course 3, five hours.

THIRD YEAR.

Italics indicate the title of the corresponding medical courses.

First Semester: Hygiene, Course 1, three hours; Anatomy, Course 1, two hours (*Osteology*); Zoology, Course 9, six hours (or the medical course in *Embryology*, for which, however, no credit is given toward the degree of Bachelor of Science); Anatomy, Course 2, two hours (*General Anatomy*).

Second Semester: Hygiene, Course 1*a*, two hours; Anatomy, Course 8, five hours (*Histology*); Anatomy, Course 3, two hours (*General Anatomy*).

FOURTH YEAR.

Italics indicate the title of the corresponding medical courses.

First Semester: Physiological Chemistry, Course 7, five hours; Anatomy, Course 4, two hours (*Anatomy of Nervous System*); Anatomy, Course 5, four hours (*Practical Anatomy*); Physiology, Course 1, five hours.

Second Semester: Physiological Chemistry, Course 6, three hours; Anatomy, Course 6, four hours (*Practical Anatomy*); Physiology, Course 2, five hours; the medical courses in *Regional and Surgical Anatomy* and in *Electrotherapeutics*, for which, however, no credit is given toward the degree of Bachelor of Science.

COMBINED COURSE IN COLLEGIATE AND LAW STUDIES.

In order that the collegiate work and the work in law may be successfully combined, it is necessary that a student enrolled in the Department of Literature, Science, and the Arts, should complete, before the close of his fourth year of residence, Course 1 in International Law (page 87); Course 19 in History (Constitutional Law and Political Institutions of the United States, page 79); Course 16 in Philosophy (Political Philosophy, page 83); and at least *twenty hours* of work selected from the following courses, all of which, however, are strongly recommended as a desirable preparation for the study of law:—

In History: Courses 3, 4, 11, 14, 15, 21, 22, embracing the constitutional history of England, the political and constitutional history of the United States, English constitutional law, and comparative constitutional law (see pages 78–80).

In Political Economy and Sociology: Courses 3, 4, 5, 9, 19, 22, embracing the history of the development of industrial society, problems in political economy, principles of the science of finance, money and banking, and principles and problems of sociology (see pages 85–87).

In Philosophy: Courses 1*a*, 2, 2*b*, embracing the elements of logic and psychology (see pages 81–83).

From the courses above enumerated the Faculty of the Department of Law will accept an amount represented by *ten hours* of credit as a substitute for the law courses in Elementary Law, Elementary Real Property, Constitutional Law, Private International Law, and the Science of Jurisprudence.

It will furthermore be necessary for the student in the Department of Literature, Science, and the Arts, to complete before the close of his fourth year of residence, the courses offered in the Department of Law in the subjects of Contracts, Torts, Domestic Relations (including Husband and Wife), and Personal Property. On the completion of these courses credit toward graduation to the extent of *fifteen hours* will be given in the Department of Literature, Science, and the Arts.

To be entitled to the privilege of entering upon the combined course a student must have at least *ninety hours* to his credit as a candidate for a collegiate degree.

The work of students who receive permission to enter upon this combined course is under the supervision of a special joint committee, consisting for the current year of Professors McLAUGHLIN, F. M. TAYLOR, HUTCHINS, and MECHEM, and Assistant Professor LLOYD. This committee also has supervision of the work of students enrolled in the Department of Law who receive permission to take extra work of a collegiate character, and of literary students who receive permission to take some part of the course in law without entering upon the combined course. All students who wish to carry on work in the two departments, whether on the combined course or not, must secure permission to do so from the committee before making their elections.

REQUIREMENTS FOR GRADUATION.

[For the Higher Degrees, see the chapter on the Graduate School, page 127.]

Residence at the University for at least one academic year is required of all candidates for a degree.

Different lines of study lead to the degrees of Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, and Bachelor of Letters. The several degrees may be earned either on the credit system, or on the university system. A description of the latter is given on page 117. The requirements for graduation on the credit system are as follows:

GRADUATION ON THE CREDIT SYSTEM.

On the credit system, the Faculty recommends for graduation students who have secured a stated number of *Hours* *of Credit*, according to the requirements specified below,—a part of the subjects being prescribed and a part being chosen by the student. An *Hour of Credit* is ordinarily given for the satisfactory completion of work equivalent to one exercise a week during one semester, whether in recitations, laboratory work, or lectures. Lectures and recitations are usually one hour in length; but in courses of study that involve laboratory work, drawing, or other practical exercises, a longer attendance than one hour at an exercise is required in order to secure an hour of credit.

The courses enumerated are more fully described in the section on Courses of Instruction, pages 59 to 110.

THE DEGREE OF BACHELOR OF ARTS.

To obtain the recommendation of the Faculty for the degree of Bachelor of Arts, the student must secure *one hundred and twenty Hours of Credit.* The prescribed portion of this work is as follows:

In Greek: Courses 1, 2, 3, 4, and either 5*a* or 5*b*.
In Latin: Courses 1, 2, 3, 4.
In French: Courses 1, 2.
In English: Courses 1, 2.
In Philosophy: Course 1.
In Mathematics: Courses 1*a*, 2*a*, 3*a*, 4*a*.*

But after a student has completed Courses 1, 2, 3 in Greek, 1, 2 in Latin, and 1*a*, 2*a*, or an equivalent, in mathematics, he may at his option, discontinue the study of any one of these three subjects. From the other courses offered he must choose and complete enough to secure in all *one hundred and twenty Hours of Credit.*

THE DEGREE OF BACHELOR OF PHILOSOPHY.

To obtain the recommendation of the Faculty for the degree of Bachelor of Philosophy, the student must secure *one hundred and twenty Hours of Credit.* The prescribed portion of this work is as follows:

In Latin: Courses 1, 2, 3, 4.
In French: (*a*) for those who entered without French, sixteen hours, including Courses 1, 2;
  or (*b*) for those who entered with the two-year requirement in French, eight hours of advanced work.

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*Instead of these courses the student is permitted to take other courses in mathematics of equivalent amount.

In German: (*a*) for those who entered without German, sixteen hours, including Courses 1, 2, 3, and an option in Gourse 4;
or (*b*) for those who entered with the two-year requirement in German, eight hours, including Course 3 and an option in Course 4.
In English: Courses 1, 2.
In Philosophy: Course 1.
In Mathematics: Courses 1*a*, 2*a*, 3*a*, 4*a*.*

But after a student has completed Courses 1, 2 in Latin, 1*a*, 2*a*, or an equivalent, in mathematics, and eight hours in German (if he entered without German) or Courses 1, 2 in French (if he entered without French), he may, at his option, discontinue the study of Latin, or mathematics, or a modern language (French or German) which he began in the University. From the other courses offered he must choose and complete enough to secure in all *one hundred and twenty Hours of Credit.*

THE DEGREE OF BACHELOR OF SCIENCE.

To obtain the recommendation of the Faculty for the degree of Bachelor of Science, the student must secure *one hundred and twenty Hours of Credit.* The prescribed portion of this work is as follows:

In French: (*a*) for those who entered without French, eight hours;
or (*b*) for those who entered with the two-year requirement in French, four hours of advanced work.
In German: (*a*) for those who entered without German, eight hours;
or (*b*) for those who entered with the two-year requirement in German, Course 3.
In English: Courses 1, 1*a*.
In Mathematics: Courses 1*a*, 2*a*, or an equivalent.
In Physics: Course 1.
In General Chemistry: (*a*) for those who entered without chemistry, Course 1 and Course 2 or 5;
or (*b*) for those who entered with chemistry, Course 2 or 5.
In General Biology: Course 1.

In addition to the foregoing the student must secure credit to the amount of *thirty hours* in some subject or subjects designated as his Chief Study. The Chief Study must be chosen from one of the following departments of instruction (or from two of these departments, if permission is first obtained from the heads of the two departments to divide the work between them): Astronomy, Botany, Chemistry, Geology, Hygiene, Mathematics, Mineralogy, Physics, Physiology, Zoology. The student is advised to consult early in his course with the head of the department in which he proposes to take his Chief Study.

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* See foot-note on preceding page.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit.*

THE DEGREE OF BACHELOR OF LETTERS.

To obtain the recommendation of the Faculty for the degree of Bachelor of Letters, the student must secure *one hundred and twenty Hours of Credit.* The prescribed portion of this work is as follows:

In French: (*a*) for those who entered without French, sixteen hours, including Courses 1, 2;
  or (*b*) for those who entered with the two-year requirement in French, eight hours of advanced work.
In German: (*a*) for those who entered without German, sixteen hours, including Courses 1, 2, 3, and an option in Course 4;
  or (*b*) for those who entered with the two-year requirement in German, eight hours, including Course 3 and an option in Course 4.
In English: Courses 1, 2, 3, 4.
In History: Courses 1, 2.
In Philosophy: Course 1.
In Mathematics: Course 1*a*.

But after a student has completed Courses 1, 2 in French (if he entered without French) and Courses 1, 2 in German (if he entered without German), he may at his option, discontinue either of these two subjects. From the other courses offered he must choose and complete enough to secure in all *one hundred and twenty Hours of Credit.*

GRADUATION ON THE UNIVERSITY SYSTEM.

1. The privileges of the university system are open to undergraduates who have completed their second year of residence, and have also secured at least sixty Hours of Credit, including all the prescribed work that can be taken in the first two years for some one of the bachelor's degrees.

2. Before beginning his work each undergraduate student must make application to the Registrar, and receive from him a certificate that he is entitled to enter upon the work. This application must be made before the student enters on the work of his third year of collegiate residence. In cases of exceptional character, however, the Faculty may

grant permission to begin work on this system at a later date.

3. Students who are working on the university system are not held to the completion of a fixed number of hours of work, but are required to pursue three distinct lines of study, one *major study* and two *minor studies*, and at the close of the work, to pass a special examination on those studies. The committee in charge of any undergraduate's work may, however, at their option, accept in lieu of the final examination in a minor study, approved work, in the line of that study or germane to it, done on the credit system, equivalent to one-fourth of the amount of work remaining to be completed by the student before graduation, if he had continued on the credit system. Members of the graduating class who have completed all the prescribed portions of the requirements for graduation, and who have not more than thirty hours of work to complete in their last year of residence, are allowed to take, in place of one-half the amount remaining to be completed, a major study on the university system; or, in place of all the amount remaining, a line of special work approved and directed by the Administrative Council of the Graduate School.

4. The work of students carrying on their studies on the university system is supervised by committees of the Faculty. The members of the committee in each case consist of the professors in charge of the student's work, the professor in charge of the major study being chairman. On making his application to the Registrar, each student is directed to the proper committee.

5. Students on the university system are subject to all the rules of the Department relating to attendance and to examinations. No student can be excused from any work that he has once entered upon, nor from any examination, without the consent of the instructor in charge of the work. Examinations passed at the close of each semester on ordi-

nary class work do not count as an equivalent or in abatement of the final examination to be passed for a degree, except as provided above in paragraph 3.

6. Undergraduates who have been enrolled as candidates on the university system for at least three semesters, may be admitted to a special examination for a bachelor's degree at a date not earlier than the end of three and a half years of residence at the University. Before being recommended for any bachelor's degree, however, they must have completed all the courses prescribed for that degree. The examination is conducted by the regular committee and such other persons as they may ask to assist them.

TEACHER'S DIPLOMA AND TEACHER'S CERTIFICATE.

The aims of the University in providing instruction in the Science and the Art of Teaching, are as follows:

1. To fit the University students for the higher positions in the public school service.
2. To promote the study of educational science.
3. To teach the history of education, and of educational systems and doctrines.
4. To secure to teaching the rights, prerogatives, and advantages of a profession.
5. To give a more perfect unity to our State educational system by bringing the secondary schools into closer relations with the University

TEACHER'S DIPLOMA.

The Teacher's Diploma is given to a student in connection with his bachelor's degree, provided he has complied with the following conditions:

(1) He must have taken Courses 1 and 2 and some three-hour course in the science and art of teaching (see pages 84 and 85).

(2) He must have taken such teacher's course or courses as may be prescribed in some one of the other departments of instruction that offer such courses.

(3) He must have shown such ability in his work as will, in the judgment of the professors interested, entitle him to receive such diploma, it being distinctly understood that work good enough to count towards

fulfilling the requirements for a degree is not of necessity good enough to count for this purpose.

The Diploma is also given to a graduate student at the time of receiving a master's or a doctor's degree, provided he has pursued teaching as a major or minor study and has also taken a Teacher's Course in some other department.

TEACHER'S CERTIFICATE.

By authority of an act of the State Legislature, passed in 1891, the Faculty of this Department gives a Teacher's Certificate to any person who takes a bachelor's, master's, or doctor's degree and also receives a Teacher's Diploma as provided above. By the terms of the act, the certificate given by the Faculty "shall serve as a legal certificate of qualification to teach in any of the schools of this State, when a copy thereof shall have been filed or recorded in the office of the legal examining officer or officers of the county, township, city, or district."

FELLOWSHIPS AND SCHOLARSHIPS.

ELISHA JONES CLASSICAL FELLOWSHIP.

In 1889 the Elisha Jones Classical Fellowship was established by Mrs. Catherine E. Jones, in memory of her husband, Professor Elisha Jones, a graduate of this University in the class of 1859, and for many years a member of the Literary Faculty. Its purpose is "to encourage patient, honest, accurate study of the languages, literature, and archæology of ancient Greece and Rome." Its present income is $500 a year.

A candidate for this Fellowship must have spent at least three entire semesters as a student in this Department of the University and must be a Bachelor of Arts of this University, of not more than two years' standing. Appointments to the Fellowship are made by an Examining Board, consisting of President ANGELL and Professors D'OOGE, KELSEY, HUDSON, and PATTENGILL. The period of incumbency is limited to two academic years, and must be spent at this University "unless at any time the examining board shall see fit to allow the second year to be spent" at some other place favorable to classical study.

The present holder of the Fellowship is Duane Reed Stuart, A.B.

DETROIT HIGH SCHOOL SCHOLARSHIPS.

The alumni of the Detroit High School have established several scholarships open to graduates of that school. The first steps toward raising a fund for this purpose were taken in 1891; and a corporation has since been formed under the title of the Detroit High School Scholarship Fund Association.* From four to six students at a time usually enjoy the benefit of the fund. Several of the beneficiaries have received degrees at the University. One of the scholarships is known as the Mary C Leete Memorial Scholarship, in memory of a teacher who died in 1894.

SAGINAW HIGH SCHOOL SCHOLARSHIPS.

Four scholarships, with an annual income of two hundred and fifty dollars each, established by Mr. Arthur Hill, of Saginaw, W. S., and known as the John Moore, the Wells-Stone, the Alonzo L. Bingham, and the Otto Roeser scholarships, are open to graduates of the Saginaw High School.

The Saginaw, E. S., High School offers two scholarships of fifty dollars each to deserving graduates of that school. One of these is known as the Heavenrich, Brothers & Co's scholarship, and is provided by the mercantile firm of that name. The other, designated as the High School Scholarship, is cared for largely by the High School Lyceum.

SCHOLARSHIP OF THE CLASS OF 1894.

The Class of 1894 has established a scholarship fund, but the proceeds of the fund are not yet available.

SETH HARRISON SCHOLARSHIP FUND.

The Seth Harrison Scholarship Fund was established, in memory of her father, by Mrs. Clara Harrison Stranahan, of Brooklyn, N. Y. The principal of the fund is twenty-five thousand dollars. The income is to be used, on conditions specified in the covenant between Mrs. Stranahan and the Board of Regents, for the benefit of descendants of Seth Harrison who may be pursuing studies in the Department of Literature, Science, and the Arts of the University of Michigan, whenever applicants properly qualified present themselves. Provision is made, however, for applying the income of the fund to scholarships for other persons, "if at any time there shall be a period of seven years during which there are no qualified applicants," descendants of Seth Harrison.

THE PHILLIPS SCHOLARSHIPS.

The late Henry Phillips, Jr., of Philadelphia, Pa., made provision in his will for the establishment and maintenance of six scholarships, to be known as The Phillips Scholarships, in the Department of Literature, Science, and the Arts of the University of Michigan. By the terms of the will these scholarships are to be open only to candidates for the degree of Bachelor of Arts, who excel in the Greek and Latin studies required for admission to the University; and they are to be awarded by a committee consisting of the President of the University, the Dean of the Department, the senior professor of Greek, and the senior professor of Latin.

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*The State Legislature in 1893 passed an act providing "that five or more persons of full age, residing in the State of Michigan, may associate and incorporate themselves together for the purpose of establishing scholarships in the University of Michigan, for the benefit of graduates of the high schools of this State." A corporation organized in accordance with the provisions of this act "shall be under the general management of not less than five nor more than fifteen trustees," and "shall, in law and equity, be capable of taking and receiving real and personal estate . . . . not exceeding one hundred thousand dollars in the aggregate, for the purpose of its incorporation."

GRAND RAPIDS HIGH SCHOOL SCHOLARSHIPS.

The High School Scholarship Association of Grand Rapids is a body incorporated under the State law, for the purpose of assisting graduates of the Grand Rapids High School to secure a college education in the Department of Literature, Science, and the Arts of the University of Michigan.

SCHOLARSHIP OF THE CLASS OF 1897.

The class of 1897 has established a fund, a portion of which is available as a loan fund.

SCHOLARSHIP OF THE CLASS OF 1898.

The class of 1898 has established a scholarship fund, but the proceeds of the fund are not yet available.

RULES AND REGULATIONS OF THE DEPARTMENT.

The following rules and regulations relate to admission conditions, election of studies, examinations, work in other departments, attendance, and discipline.

ADMISSION CONDITIONS.

All students are regarded as strictly on probation, until they have removed all conditions incurred in the examinations for admission to the Department. All such conditions must be removed during the year following the date of the examination. Students who have any admission conditions outstanding at the beginning of their second year of residence are not allowed to join their classes until such conditions are removed.

ELECTION OF STUDIES.

I The maximum number of hours a week a student may elect without special permission of the Faculty is *sixteen*.

In cases of exceptional proficiency additional hours are granted by the Faculty on special request; but in all cases requests for permission to take an additional number of hours must be made in writing on a blank form provided by the Registrar, and must be deposited in the Registrar's box on or before the *first Saturday* of the semester during which the additional work is desired.

N B —For students who are allowed to make up preparatory studies in the Ann Arbor High School a corresponding reduction is made from the maximum number of hours allowed them in the University.

II. The minimum number of hours a student may elect without special permission of the Faculty is *twelve.*

All requests for permission to take less than twelve hours must be made in writing, stating the proposed election and the reasons therefor, and must be presented to the Chairman of the Administrative Board on or before the *first Saturday* of the semester for which the election is made.

III. For first-year students the following schemes of elections, or such parts thereof as may be needed in making up a suitable amount of work, are recommended:

1. For candidates for the degree of Bachelor of Arts:

First Semester: Greek, four hours; Latin, three hours; Mathematics, three hours; French, four hours; English, two hours.

Second Semester: Greek, four hours; Latin, four hours; Mathematics, four hours; French, four hours.

2. For candidates for the degree of Bachelor of Philosophy:

First Semester: Latin, three hours; Mathematics, three hours; French and German, eight hours; English, two hours.

Second Semester: Latin, four hours; Mathematics, four hours; French and German, eight hours.

3. For candidates for the degree of Bachelor of Science:

First Semester: Mathematics, three hours; French or German, four hours; English, two hours; General Chemistry, three hours; other studies three or four hours.

Second Semester: Mathematics, four hours; French or German, four hours; Physics, five hours; General Chemistry or English, two or three hours.

4. For candidates for the degree of Bachelor of Letters:

First Semester: Mathematics, three hours; French, four hours; German, four hours; History or other studies, five hours.

Second Semester: French, four hours; German, four hours; English, two hours; History or other studies, six hours.

IV. Except as provided in (II) and (III) each student may elect his studies and may pursue them in any order he may choose, subject only to the following restrictions:

a. Before entering on any study the student must give the professor in charge satisfactory evidence that he is prepared to pursue it with advantage.

b. If he is a candidate for a degree, he must, as early as possible in his course, take all the courses "prescribed" for the degree he seeks.

c. No student is allowed to elect merely a part of a course without special permission of the Faculty.

d. No credit is allowed a student for work in any course, unless the election of the work is formally made and reported to the Registrar before the work is begun.

e. After the first Saturday of each semester no study can be taken up or dropped without special permission of the Administrative Board. All requests for permission to take up or drop studies must be made in writing on specially provided blank forms and in accordance with the rules printed thereon.

f. The Faculty requires a student to drop a part of his work at any time, if in its opinion he is undertaking too much; or to take additional work if it thinks he is not sufficiently employed.

g. The Faculty reserves the right to withdraw the offer of any study not chosen by at least six persons.

V. After matriculation a student cannot, without special permission of the Faculty, be admitted to examination in any one of the courses given, until he has received in the University the regular instruction in such course.

VI. The student is urged to make his choice of studies with care, and with reference to some plan. The members of the Faculty are ready to give advice and assistance in this regard.

VII. Students expecting to graduate in any given year must report to the Registrar at the opening of the year and ascertain what prescribed work, if any, is still lacking for the degree sought.

EXAMINATIONS.

a. Admission Examinations.

1. A student who wishes to take the examinations for admission at a time not announced in the Calendar (see page 52) must make application to the Dean of the Department and pay to the Treasurer a fee of five dollars before he can be admitted to examination.

b. Semester Examinations.

2. All students of this Department, whether candidates for a degree or not, if at work on the credit system, are required to attend all the examinations in the courses of study they pursue.

3. No student absent from any regular examination in any course of study that he may have pursued, is allowed to take such omitted examination before the next regular examination in that course. In cases of great urgency, however, the Faculty may grant students special permission to be examined at an earlier date.

4. Any student reported as passed "*Conditionally*" in any course, must remove the condition within one year from the date of the examination in which it was incurred; otherwise, the course passed conditionally is regarded and treated as "*Not Passed.*"

5. No credit for any course is given a student reported as "*Not Passed*" in that course until he has again pursued it as a regular class exercise and has passed the regular examination therein.

c. Removal of Conditions, etc.

6. Any student who desires to remove a condition incurred at the admission examination, or at any other time, or who desires to take a class examination from which he was absent at the regular time, must make application to the Registrar and receive from him a blank form for presentation to the instructor in charge of the examination. The blank, when filled, must be deposited by the student with the Registrar within one week from the date entered upon it by the examiner.

RELATION TO OTHER DEPARTMENTS.

1. Candidates for a degree in this Department of the University, who wish to pursue studies in any other department, may be granted that privilege, provided they lack, at the beginning of the academic year, no more than sixteen hours of graduation and take no more than eight hours of work in any given semester in this Department in connection with the semester's work in the other department.

2. All students admitted from other departments of the University to the privileges of this Department are regarded in the class room as members of this Department, and are required to pass the regular examinations with the classes in which they are enrolled. Violations of this requirement will be deemed a forfeiture of the privileges of this Department; but this rule is not to be interpreted as applying to those who are permitted to attend lectures or other exercises without being enrolled.

ATTENDANCE AND DISCIPLINE.

The State of Michigan extends the privileges of the University, with only moderate charges, to all persons of either sex, who are qualified for admission. Thus it does not receive patronage, but is itself the patron of those who seek its privileges and its honors. It cannot, however, be the patron of idleness or dissipation. Its crowded classes have no room except for those who assiduously pursue the studies of their choice, and are willing to be governed in their conduct by the rules of propriety.

Students not in their places at the opening of the semester must present written excuses from their parents or guardians for the delay.

Such delinquencies as tardiness, absence, deficiencies, and offences against good order, in the several departments of instruction, are ordinarily dealt with by the instructor in charge of the department in which they occur. Flagrant cases are reported to the Faculty for adjudication.

Students are suspended or dismissed, whenever in the opinion of the Faculty they are pursuing a course of conduct seriously detrimental to themselves or the University.

The following is a By-Law of the Regents:

"Whenever any Faculty is satisfied that a student is not fulfilling, or likely to fulfil, the purpose of his residence at the University, or is for any cause an unfit member thereof, the President shall notify his parents or guardians, that they may have an opportunity to withdraw him, and if not withdrawn within a reasonable time he shall be dismissed"

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty dollars;* for all others, *forty dollars.*

Special Examination Fee.—A fee of *five dollars* is required of all persons who take the examination for admission at a date not announced in the Calendar (see page 52).

Diploma Fee.—For all alike, *ten dollars.* A fee of *one dollar* is charged for the Teacher's Diploma.

For laboratory fees and other expenses, see pages 39 to 41.

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*The Matriculation Fee and the Annual Fee must be paid in advance; no portion of these fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year. The Auditing Board have authority, under certain conditions, to remit the Special Examination Fee.

Graduate School.

A special Announcement giving additional information in regard to the Graduate School was issued in the spring of 1898. Copies of this Announcement can be had by addressing Mr. James H. Wade, Secretary of the University.

THE Graduate School is organized within the Department of Literature, Science, and the Arts. Its management is entrusted to an Administrative Council, consisting of the President of the University, the professors and junior professors in the Faculty of the Department, and such other persons as may be elected to membership. The purpose of the school is to bring into greater prominence the numerous advanced courses of instruction that have been developed from the continual extension of the elective system; to secure a more efficient and systematic administration of this higher work; and to provide as far as possible for the separate instruction of graduate students.

ADMISSION AND REGISTRATION.

All applicants for admission to the Graduate School must first report to the Dean of the Department of Literature, Science, and the Arts, and present their credentials. They will then be referred to the Secretary of the Administrative Council, for the arrangement of courses of study.

The privileges of the school are open to graduates of the Department of Literature, Science, and the Arts of this University, and to graduates of other universities and colleges, who satisfy the Administrative Council that they are qualified to pursue with profit the advanced courses of study offered in the school.

Graduates of institutions where the undergraduate courses of study are not substantially equivalent to the course prescribed at this University, will ordinarily be required to do an additional amount of undergraduate work, or to prolong their term of residence, before being admitted to full candidacy for a higher degree.

Graduates of this University, or of other institutions, who do not wish to become candidates for a degree, may be admitted and registered as special resident graduates.

Graduates of other institutions who are candidates for a bachelor's degree in the Department of Literature, Science, and the Arts, are not registered in the Graduate School.

COURSE OF INSTRUCTION.

The courses of instruction offered in the Department of Literature, Science, and the Arts, and described on pages 59 to 110, are all open to graduate students who satisfy the professors in charge that they are qualified to pursue the work to advantage. In all branches of study provision is made for the instruction of graduate students.

The work of candidates for a higher degree is not confined strictly to the courses referred to above. Each student chooses three lines of study, a major study and two minor studies, which after approval by the Council he pursues under the immediate supervision of a special committee, consisting of the professors in charge of the studies chosen, the professor in charge of the major study being chairman. The nature of the work prescribed, and of the committee's oversight, varies in different cases according to the subjects chosen, the degree sought, and the previous attainments of the student. The work may consist of attendance upon certain lecture courses, or of reading to be done privately and reported upon, or of investigation or research to be carried on more or less independently. In general, the method followed is that of the so-called university system described on page 117, with modifications as circumstances may make necessary. The essential features of this system are specialization of study, a final examination, and a thesis. A thesis is always required of a candidate for a doctor's degree and of a non-resident candidate for a master's degree; for a master's degree in residence, the requirement may be waived at the discretion of the committee in charge of the student's work. The final examination for a degree is conducted under the direction of the committee, and the result of the examination is reported to the Faculty of the Department of Literature, Science, and the Arts.

REQUIREMENTS FOR GRADUATION.

The degrees conferred on the completion of approved courses of study in the Graduate School are Master of Arts, Master of Philosophy, Master of Science, Master of Letters, Doctor of Philosophy, and Doctor of Science.

THE MASTERS' DEGREES.

The masters' degrees are open to Bachelors of Arts, Philosophy, Science, or Letters, of this University, or of any other reputable university or college. A residence of at least one year at this University is required, except as stated below.

Residents.—A student who has received a bachelor's degree may be recommended for the corresponding master's degree after completing the prescribed term of residence, and passing an examination on the course of study approved by the Administrative Council. A thesis may, or may not, be included in the requirements for the degree, as the committee in charge of the student's work may determine.

A student properly qualified may be permitted to pursue at the same time studies for a master's degree, and studies in any of the professional schools, on condition that the term of study and residence in the Graduate School be extended to cover at least two years.

Non-Residents.—A Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, or Bachelor of Letters, of this University, who has already completed a portion of the term of residence prescribed for a master's degree, may be allowed to continue his studies for the degree without further residence at the University, on such conditions as the Administrative Council may determine in each case. *This privilege is restricted to graduates of this University.*

THE DOCTORS' DEGREES.

1. The doctors' degrees are open to all persons who have received a bachelor's degree; but no student will be accepted as a candidate for a doctor's degree who has not a knowledge of French and German sufficient for purposes of research. The degree of Doctor of Philosophy is the one usually conferred; though candidates who pursue studies along scientific lines may, at their option, receive the degree of Doctor of Science.

2. It is not intended that the doctor's degree shall be won merely by faithful and industrious work for a prescribed time in some assigned course of study, and no definite term of required residence can be specified. As a rule, three years of graduate study will be necessary, the last

two semesters of which must be spent at this University. The period of three years, however, may be shortened in the case of students who, as undergraduates, have pursued special studies in the direction of their proposed graduate work.

3. No student will be enrolled as a candidate for a doctor's degree until he has been in residence as a graduate student for at least one year. [This rule may be waived in the case of those who come properly accredited from a Graduate School of some other University, and of those who, as undergraduates in this University, have shown special proficiency in the line of their proposed graduate work.]

4. A student wishing to become a candidate for a doctor's degree must make a formal application to be so enrolled at least two semesters prior to the time of presenting himself for examination.

5. A candidate for a doctor's degree must take a major study that is substantially co-extensive with some one department of instruction in the University. He must also take two minor studies, one of which may be in the same department as the major, but involving a more thorough treatment of the same. Both minors must be cognate to the major, and all studies must be subject to the approval of the Administrative Council.

6. THE THESIS.—The thesis is of great importance. It must exhibit creditable literary workmanship and a good command of the resources of expression; but it must depend for acceptance more upon its subject-matter than upon its formal or rhetorical qualities. It must be an original contribution to scholarship or scientific knowledge. The inquiry should be confined within narrow bounds. The treatment should be as concise as the nature of the matter permits, and show familiarity with the history of the problem treated, with the literature bearing upon it, and with the latest methods of research applicable to it. Every thesis should contain a clear introductory statement of what it is proposed to establish or to investigate, and likewise a final résumé of results. It should also be accompanied by an index of contents and a bibliography of the subject. It is expected that the preparation of an acceptable thesis will usually require the greater part of one academic year.

SPECIAL REGULATIONS RELATING TO THE HIGHER DEGREES.

1. Applicants for an advanced degree are required to announce to the Council, through the Secretary, as early as the tenth of October of each year, the particular branches of study to which they wish to give special attention. The supervision of their work will then be entrusted to the proper committee.

2. The subject of the thesis for a doctor's degree must be chosen, and must be approved by the committee concerned, as early as the first of November of the college year in which the applicant expects to take

the degree; and the subject of the thesis for a master's degree, when required, must be chosen and approved as early as the first of December.

3. The thesis must be completed and put into the hands of the chairman of the proper committee as early as the first of May of the year in which the applicant expects to take the degree.

4. The thesis must be prepared for close scrutiny with reference not only to its technical merits, but also to its merits as a specimen of literary workmanship. It must be preceded by an analytical table of contents and a carefully prepared account of the authorities made use of.

5. The thesis must be read and defended in public at such time as the Council may appoint, and, in case of a master's degree, a bound copy, either written or printed must be deposited in the University library.

6. Every candidate for the degree of Doctor of Philosophy or Doctor of Science, in case of the acceptance of his thesis, is required to deposit in the University library a type-written copy of the thesis, and to have it printed in full or in part as may be approved by the responsible committee. He is also required to present twenty-five copies of the printed thesis to the University library. To guarantee the printing of the thesis, every candidate for the doctor's degree is required to deposit with the Treasurer of the University, between the date of the acceptance of his thesis and the time fixed for his examination, the sum of fifty dollars, which deposit will be returned to him in case of failure to pass his examination, or whenever he shall cause his thesis to be printed at his own expense, or shall have it published in a form and under auspices approved by the responsible committee.

In the printing of the thesis at his own expense, the candidate will be expected to use good substantial paper and sightly typography. A page four inches by six, with outside margins of at least one inch, is recommended.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty dollars;* for all others, *forty dollars.* The annual fee required of all graduates who are granted the privilege of pursuing studies for a master's degree *in absentia*, is *ten dollars.*

Diploma Fee.—For all alike, *ten dollars.* A fee of *one dollar* is charged for the Teacher's Diploma.

For laboratory fees and other expenses, see pages 39 to 41.

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*The Matriculation Fee and the Annual Fee must be paid in advance; no portion of these fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Department of Engineering.

A special Announcement giving further information in regard to this Department is published annually. The Announcement to be published in June, 1899, will contain a Register of Alumni from 1860 to 1898 inclusive, and give the positions held by them since graduation. For copies of this Announcement or other information relating to the Department, address Professor Charles E. Greene, Dean of the Department of Engineering, Ann Arbor, Michigan.

IN the legislative act under which the University was organized in 1837, provision was made for instruction in engineering. Work was begun in this line in 1853, and the first degrees were conferred in 1860. The engineering courses were included in the Department of Literature, Science, and the Arts, until the close of the collegiate year, 1894–95. At that time the Department of Engineering was established by the Board of Regents.

Persons who wish to become professional engineers are offered thorough courses in civil, mechanical, electrical, and chemical engineering. The work extends through four years. The aim of the Department is to lay a foundation of sound theory, sufficiently broad and deep to enable its graduates to enter understandingly on the further investigation of the several specialties of the profession; and at the same time to impart such a knowledge of the usual professional practice as shall make its students useful in any position to which they may be called. While the adaptation of theory to practice can be thoroughly learned only by experience, there are many matters in which the routine work of an engineering field party, office, or drafting room can be carried out on a greater or less scale in a training school. The technical branches are under the direct care of those who have had professional experience as well as a full scientific training, and in all particulars the courses embody as close an imitation of the requirements of active labor as the instructors who have the several branches in charge can devise.

The academic year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1899, to June 21, 1900).

REQUIREMENTS FOR ADMISSION.

[For admission to advanced standing, see page 136.]

[For admission of students not candidates for a degree, see page 137.]

Applicants for admission must be at least sixteen years of age, and must present satisfactory evidence of good moral character. They must bring credentials from their last instructor, or from the last institution with which they have been connected.

Unless admitted on diploma from an approved school (see page 139), any student who desires to become a candidate for a degree must pass examinations in the subjects described below. Before entering upon the examination each applicant must present his credentials to the Dean of the Department at his office in the Engineering Building. Certificates and diplomas from schools other than those officially examined by the University, as specified on page 139, do not excuse an applicant from admission examinations.

Students who have satisfied any one of the four groups of requirements for admission to the Department of Literature, Science, and the Arts (see pages 43 to 49) are admitted upon completing the requirements in Plane Trigonometry and in Chemistry.

ADMISSION OF CANDIDATES FOR A DEGREE.

The subjects on which applicants for admission to any of the courses leading to a degree in engineering will be examined are as follows:

English Language.—*Grammar.*—Selections for analysis and parsing will be set, arranged to test the applicant's knowledge of the leading facts of English Grammar.* To meet this requirement, a review of the subjects should be had during the last year of the preparatory course.

Composition and Rhetoric.—The purpose of the examination in composition is to test the applicant's ability to write good English. To this end he will be asked to write two essays of not less than two hundred words each, one upon a subject drawn from books he has read, and the other upon a subject drawn from his experience or observation. The language of these essays must be grammatical and clear. The spelling, punctuation, and capitalizing must be correct. The applicant must show ability to discriminate in the use of words and to construct well-organized sentences and paragraphs. A topical outline should accompany each essay.

The requirement in English Language is identical with the requirement in English for admission to the Department of Literature, Science, and the Arts. For further suggestions regarding preparation, and for lists of books from which subjects for composition will be chosen, see pages 45 and 46.

English Literature.—Daily recitations for at least one year will be requisite. Stopford A. Brooke's English Literature (edition of 1896), or any other manual, may be used for an outline of the subject. As much time as practicable should be given to the careful reading of representative authors in each period.

French, German, or Latin.—Applicants may offer French, German, or Latin, one of these three languages being required. It is expected that at least two years will be given to preparation in the language offered. The requirements in each are as follows:

French.—The whole subject of French Grammar. The applicant will be expected to read at sight easy French, and to translate correctly into French simple English sentences. The first year ought to be spent on the grammar and easy reading, and the second devoted to reading good modern French, accompanied by grammatical analysis and exercises in writing. The texts read should be chiefly narrative and conversational prose; modern, rather than classic, dramas should be read.

German.—(1) Ability to pronounce German correctly and to take part with reasonable correctness and facility in a simple conversation upon some topic drawn from the applicant's preparatory work. (2) Thorough familiarity with the every-day facts of the grammar, to be evidenced by putting illustrative English phrases into German. (3) Abilitv to translate at sight a passage of fairly easy prose.

Latin.—Jones's First Latin Book, or an equivalent amount in any other introductory text-book, four books of Caesar's Gallic War, and one of the orations of Cicero.

Mathematics.*—*Algebra.*—Fundamental Rules, Fractions, Simple Equations, Involution and Evolution, the Calculus of Radicals, and Quadratic Equations, as given in Olney's Complete School Algebra, or an equivalent in other authors.

Geometry.—Plane, Solid, and Spherical Geometry as given in Beman and Smith's Plane and Solid Geometry, or an equivalent in other authors.

Trigonometry.—Plane Trigonometry as given in Olney's Elements of Trigonometry, or an equivalent in other authors.

N. B.—It is very desirable that High Schools whose graduates are received on diploma arrange their courses so as to include a portion of both algebra and geometry in their last preparatory year. Students who do not come from diploma schools should take a similar review if they expect to succeed in the study of mathematics in the University.

Physics.—An amount represented by Carhart and Chute's Elements of Physics. Laboratory work in physics is urgently advised, though not required; but students who have completed a course in laboratory practice, may expect to derive advantage from it if they take work in the physical laboratory in the University (see page 152).

Chemistry.—The requirement is intended to cover one year's work. As a text-book, Freer's Elementary Chemistry, or an equivalent amount of work in Remsen's Introduction to the Study of Chemistry, is recommended. In either case the text should be accompanied by laboratory work.

History.—General History as presented in such a work as Myers's General History, and one year's work in United States History and Civil Government. Johnston's History of the United States, McLaughlin's History of the American Nation, and Fiske's Civil Government or Hinsdale's American Government are recommended as text-books.

Botany, Physical Geography, or Astronomy.—The applicant may offer any *one* of these subjects. The requirements, intended to cover a half-year's work in each subject, are as follows:

Botany.—Laboratory work for half a year with occasional recitations and review exercises. The methods followed in Spalding's Introduction to Botany, or in Bergen's Elements of Botany, may serve to indicate the kind of work desired.

Physical Geography.—Tarr's Elementary Physical Geography, especially chapters 9 to 21 inclusive, or an equivalent.

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*Students entering at the beginning of the second semester (February 12, 1900) should be prepared in the mathematics of the first semester in addition to the other requirements for admission.

Astronomy.—Newcomb and Holden's Astronomy, Briefer Course, Young's Elements of Astronomy, or an equivalent. A knowledge of the principal constellations is required.

ADMISSION TO ADVANCED STANDING.

1. Graduates of the Department of Literature, Science, and the Arts of this University, or of any other reputable college, are admitted without examination to advanced standing as candidates for a degree in engineering, and are excused from a considerable portion of the general requirements for graduation (see page 163). The remaining requirements can be completed in two years, or, possibly, in a single year, if the student takes as electives, while an undergraduate, some of the courses open to him in the Department of Engineering. A knowledge of differential and integral calculus, of analytical mechanics, of elementary drawing, and of descriptive geometry, is needful for the advanced work.

2. Students who have completed at least one year's college work in an approved college, and who bring explicit and official certificates describing their course of study and scholarship, and testifying to their good character, are admitted to advanced standing without examination, except such as may be necessary to determine what credit they are to receive for work done in the college from which they have come.

3. Students who have not completed a year's college work in an approved college, but, previous to entering this department of the University, have pursued studies beyond those required for admission, may be admitted to advanced standing on passing the regular entrance examinations, and examinations in such undergraduate studies as they may ask to be credited with in advance.

4. Rules relating to admission to advanced standing:

a. Any student whether a candidate for a degree or not, who applies for advanced standing on the conditions stated in paragraphs (2) and (3) above, must present to the Dean a statement showing the amount of work done in the subjects in which credit is asked.

b. The application for advanced standing should be made to the Dean before the first of November, or (if the student be matriculated at the beginning of the second semester) before the fifteenth of March. The Dean will then furnish a blank form for presentation to the professors in charge of the several subjects named in the blank.

c. Credits must be secured before the fifteenth of December or (if the student be matriculated at the beginning of the second semester) before the tenth of April.

d. No credit will be given for advanced standing after the dates named in (*c*).

e. An account once closed cannot be reopened without special permission of the Faculty.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE.

Persons who desire to pursue studies in this department, and do not desire to become candidates for a degree, are admitted on the following conditions:

1. All persons under twenty-one years of age must pass the regular entrance examinations.

2. Persons over twenty-one years of age must show that they have a good knowledge of English and are otherwise prepared to pursue profitably the studies they may desire to take up. A knowledge of algebra, geometry, trigonometry, physics, and chemistry, equivalent at least, to that prescribed in the requirements for admission, will be necessary.

3. Should a student who enters under the preceding provision (2) subsequently become a candidate for graduation, he must pass the regular entrance examination, at least one year previous to the time when he proposes to graduate.

4. Students not candidates for a degree who wish credit for studies pursued before admission are referred to the rules relating to advanced standing given above.

5. Students not candidates for a degree are expected to attend the lectures, recitations, and examinations in the branches prescribed for the regular students, and are required to take enough work to occupy them profitably.

TIME OF EXAMINATION.

The examination for admission to the Department of Engineering will be held on Thursday, Friday, and Saturday, September 21, 22, and 23, 1899. Applicants will not be examined at any other time except on payment of a special fee of *five dollars.*

As the examination begins at 8 A. M. on Thursday, it will be necessary for all applicants for admission on examination to present their credentials to the Dean of the Department, at his office, on Wednesday, September 20, between the hours of 9 and 5, and receive from him papers admitting to the examination.

The examinations in the several subjects will be in writing and will be held in Tappan Hall in accordance with the schedule given below:

THURSDAY, SEPTEMBER 21. TAPPAN HALL.

8 A. M.	Physics	Lecture Room
10 A. M.	History	Lecture Room
4 P. M.	Chemistry	Lecture Room

FRIDAY, SEPTEMBER 22.

8 A. M.	Geometry	Lecture Room
10 A. M.	Botany	Lecture Room
10 A. M.	Physical Geography	Lecture Room
10 A. M.	Astronomy	Lecture Room
2 P. M.	Latin	Lecture Room
2 P. M.	French	Room 12
2 P. M.	German	Room 10

SATURDAY, SEPTEMBER 23.

8 A. M.	Algebra	Lecture Room
8 A. M.	Trigonometry	Lecture Room
10 A. M.	English Literature	Room 10
2 P. M.	English	Lecture Room

ADMISSION ON DIPLOMA.

Students presenting graduation certificates from any of the schools approved by the Faculty of the Department of Literature, Science, and the Arts, are admitted without examination to the Department of Engineering. Deficiencies in the requirements for admission must, however, be made up, or substitutions secured from the Dean; extra studies may be credited on advanced standing, if the subjects are taught in either of the two departments.

For the regulations that govern admission on diploma and the list of approved schools, see pages 53 to 59.

In addition to the schools included in the list mentioned above, the Manual Training School and the English High and Manual Training School, in Chicago, Ill., have been approved as qualified to prepare students for admission on diploma to the Department of Engineering, the term of approval expiring in 1898 in each case.

THE WORK OF THE DEPARTMENT.

The studies pursued in the earlier part of the course comprise, in *Mathematics*, advanced algebra, analytic geometry, and the elements of differential and integral calculus; in *French* and *German*, an amount covering in all about a year and a half of study; in *English*, courses in higher English grammar and composition; in *Physics* and *Chemistry*, studies of the principles; and in *Drawing*, practice in geometrical and in mechanical drawing, and in the study of descriptive geometry.

The more technical subjects are taken up in the latter part of the course. Some of these subjects are of equal value to all classes of engineering students, such as analytical and applied mechanics, the strength and resistance of materials, and the metallurgy of the useful metals, especially iron and steel; others are adapted more particularly to the special wants of the students in the several courses. Their general scope may be seen from the following descriptive outline.

DESCRIPTION OF THE COURSES.

Drawing.—A very complete course in mechanical drawing is given, embracing plane projection drawing, isometric drawing, descriptive geometry, and the elementary principles of coloring and shading, with original problems executed in the drawing room. Examples from numerical data are always given when suited to the conditions of the problem in hand. Students in mechanical engineering are required to sketch pieces of machinery, and afterwards to make working drawings suitable for use in the shop. The plans of surveys, plane-table work, maps, designs in engineering construction, and the thesis drawings naturally come under this head. Instruction is also given in free-hand drawing, topographical drawing, ornamentation and lettering, shades and shadows, linear perspective, and drawing for stone cutting. The work in drawing occupies the student a part of almost every day throughout the course.

There are four large and well-lighted drawing-rooms, three of which are in the engineering building and one in the engineering laboratory. There are also special rooms for blue-printing and a dark room for photography.

Mechanical Practice and Shop Work.—The aim of the instruction in this department is to make the student, as far as time will permit, acquainted with the best mechanical practice; the instructors in all practical work are men of wide experience, selected for their mechanical skill; and the department attempts to keep in touch with the most improved methods of mechanical construction.

The courses of instruction all begin with a systematic series of graded exercises, to give the student familiarity with the common tools used in the particular branch of work he is pursuing; and in connection with each course the theory of the process is taught by lectures or by assigned readings. The student thus becomes fitted to execute an ordinary piece of mechanical work and at the same time acquires a familiarity with sources of information bearing upon such work. At a later stage in the course the student is taught to apply the principles previously studied in the class room, and to combine skill and knowledge in the transformation of crude materials into articles which have a market value.

In *Wood Work and Pattern Making*, after the student has completed the preliminary series of graded exercises, he is set to making and assembling the parts of some complete piece of carpenter or joiner work, and he then devotes the remainder of the time, about three-fifths of the whole, to the pattern work. Special stress is laid upon this part of the course. The student shapes, forms, and builds up patterns for castings in iron, brass, etc.; allows for shrinkage; makes core boxes; and becomes as familiar as possible, in the time allowed, with all the details of practice. Each class, with the help of the instructors, is expected to make a full set of the patterns needed for the construction of some special piece of working machinery.

In the *Foundry* the student learns to mould in green sand, in dry sand, and in loam, both for brass and for iron castings. Instruction is given in the making of cores for various purposes, and their use in the moulds; and in the art of selecting and mixing metals so as to produce the kind of material desired, careful attention being paid to the making of composition metals for specific purposes. Each student is required to take part in all of the work about the cupola and the brass furnaces, and to assume his share of their management during the periods of melting and casting.

In the *Forge Shop* the student is required to make forgings from a large variety of irons and steels. In this way he becomes familiar with different kinds and qualities of materials suited for forge work; he learns how to heat, forge, anneal, harden, and temper such tools as are used in machine shops; and he also has practice in soldering and brazing. The object of the course is to enable the student to acquire a certain degree of skill in practice, and at the same time impart to him a knowledge of the principles governing such processes of forging as an engineer is likely to be called upon to direct.

In the *Machine Shop* the instruction is conducted on the same plan as in the pattern shop. On the completion of the series of graded exercises, the student begins the construction of parts of machines. Each class undertakes the building of one or more simple machines. or pieces of apparatus; the work being planned in such a way as to give opportunity for learning general shop manipulation. Advanced students are also allowed to elect extra work and to assist the skilled workmen in the construction of larger machines.

Manual Training.—In all the above-described courses advanced work can be taken by students who wish to become specially skilled in certain lines, or who desire to fit themselves for instructors in Manual Training Schools or in shops of that character.

A description of the engineering shops is given on page 147.

Surveying.—(*a*) *For Students in Civil Engineering.*—The course covers a full academic year and includes text-book work, lectures, recitations, and field practice. The methods of surveying and computing used in laying out work are explained in detail; each student is required to make plats, maps, and the necessary calculations from actual surveys; and instruction is given in the proper care, use, and adjustments of instruments. There is an ample and varied supply of instruments for the use of students.

The class room instruction embraces the following topics: instruments and their adjustments; surveys for the enclosure and division of land; some account of the United States Land Survey; city surveys and town plats; surveys of lines of communication, such as roads, railways, and canals; hydrography; special surveys for various purposes of construction, such as laying out buildings, culverts, and abutments, and locating bridge piers; and, in general, the elements of all the ordinary operations to be expected in the professional practice of a civil engineer, but without including Land Surveying in the broad sense of the term. The principal text-books used are Johnson's Surveying, Raymond's Surveying, and Searle's Field Engineering. The more important works of reference are also easily accessible to the student.

The practical work outlined below, and carried on in the fall, early winter, and spring of each year, is intended to cover the elementary operations required in making surveys for engineering works, such as roads, streets, railways, canals, enclosures of land, public improvements, and the laying out of structures on the ground.

The steel-tape practice includes linear measurements, ranging lines, measuring and laying-out angles, laying-out circular curves, and making the records and computations pertaining to such work. With the transit and steel tape the student has practice in reading angles; traverse surveying; laying-out circular curves, simple and compound; and running straight lines. He is also required to keep the records and make the calculations connected with such work, to make plats, and to compute areas. The practical work with the level and rod includes simple levelling, check levels, and profile levelling, together with the necessary field notes and checks. The practice in topography embraces the use of the transit and stadia; plane-table work; and surveying with aid of the camera, including the development of negatives and the printing and mounting of photographs. From the field notes and photographs maps are made by the student. In this connection, also, the student has practice in making blue prints from negatives and from drawings.

During the last month of the academic year the class is in camp as a field party. A survey is made for some line of communication, usually a railroad, including exploration, preliminary and located lines, easements to curves, profile levelling, check levels, profile making, cross-section data, cross-sectioning, transfer of line to plugs near grade points, witnessing, and, in general, the preparation of the line for construction up to the point of beginning excavation. In this connection good field and office records are required; profiles and maps are made; and the necessary computations, including those for earthwork quantities, are worked out.

In addition to the railroad survey some other piece of field work is undertaken, the selection being made according to the fitness of the locality, the number and the previous experience of the members of the class, the time, and the weather, the purpose being to fix, by practical application, the principles learned from text-book, lectures, or previous experience. Within the past few years work of the character indicated below, has all been done, though not all in any one year:—small triangulation surveys, in which there is considerable reading of angles; compass surveys; shore-line surveys; surveys for special purposes, like town sites, bridge sites, cemeteries, or particular areas of unusual shape; resurveys of the United States Land Survey, including the finding and restoring of lost corners, and the subdivision of sections; contouring; hydrography; gauging of steams; levelling for special purposes, such as mill powers, lake levels, and the determination of the fall of streams; and, in general, any ordinary piece of field work, for which the locality chosen for the camp may afford favorable conditions.

The work in camp also includes office work along the various lines of field work, such as the computation of triangulations; reductions of careful measurements; calculation of earthwork, azimuth, areas, and elevations; mapping; platting; and profile-making.

(*b*) *For Students in Mechanical Engineering.*—The student in mechanical engineering takes a short course in the use of instruments, which is nearly all practice. He is required to read angles with a transit; to make a traverse; to make steel-tape measurements; to do simple levelling; and to compute and plat an enclosure survey. The aim of the course is to cover the simple manipulations in the ordinary use of surveying instruments, and to qualify the student for such duties in this line as are apt to fall to the mechanical engineer, such as mapping an enclosure, staking out a building and fixing the levels for it, laying out foundations for machines or boilers and establishing the levels for them, lining up shafts, setting water power machinery, and preparing lines for transmission of power by wire-rope, compressed air, or water.

(*c*) *Other Courses.*—Courses in Land Surveying, the United States Land Survey, the Canadian Survey, and in other specialties are provided, if properly qualified persons present themselves in sufficient number to form classes.

Geodesy.—For students prepared to undertake the work a course is offered, comprising lectures, reference reading, and written class reports, on geodetic methods in the field with special reference to successful present day practice. Some consideration is given to notable historical surveys, and constant use is made of the standard works of reference and reports.

Highway Construction.—A short course, comprising lectures, text-book, and examinations, is given to students of civil engineering, on the construction and maintenance of roads, streets, pavements, and walks. References are made to existing examples and present practice. Byrne's Highway Construction is used as a text-book.

Municipal Engineering.—A course of lectures, prescribed reading, and recitations covers the special field of city engineering, points out its connection with, and dependence upon, other branches of engineering work, and shows how to apply the principles of engineering to the modern problems arising in the building and improving of cities. Among the topics treated are streets and their present uses, sewers, waterworks, public franchises, assessments, bridges, building inspection, fires, lighting, street cleaning, and garbage disposal. The instruction is not intended to be of technical character, but it aims to set forth the principles that should guide the city engineer in his relations to various matters of public concern, and to supplement and apply to this special field the instruction given in other courses. This course should not be taken by undergraduates before their last year of residence.

Strength and Resistance of Materials.—A course of recitations and lectures continuing through the first half-year is devoted to this subject, and is attended by all the engineering students. The action of the different materials under applied forces, the distribution of stress, and the proper proportions to be given to the different parts of structures in order that they may safely fulfil their several functions, are carefully studied. Greene's Structural Mechanics is used as a text-book.

Tests of wood, iron, steel, cement, and other building materials are made in the Engineering Laboratory.

Theory of Structures.—Roof and bridge trusses, in wood and iron; arches, in wood, iron, and stone; trestles; brick and stone masonry; foundations; tunnels; and, in general, the whole theory of structures are discussed. In this course Rankines's Civil Engineering is used as a text-book, supplemented by full explanations, additional notes, lectures, examples, and problems, and illustrated by models, photographs, working drawings, and blue-prints.

A course of instruction extending through a year is also given in the graphical analysis of roof and bridge trusses and arches. The student is made familiar with both the analytical and graphical methods of treatment and thus possesses ready proof of the accuracy of his calculations. Greene's Roof Trusses, Bridge Trusses, and Arches, are used as text-books.

Hydraulics.—The law of the flow of water through orifices and pipes and over weirs; the gauging of streams and rivers; the designing of works for water supply, drainage, and sewerage; the laying out of canals; and the subject of river and harbor improvements are treated in the course. The text-book used is Merriman's Hydraulics.

Machinery, Prime Movers, and Millwork.—A course of instruction is given in mechanism, or the general principles of machinery, involving the study of gearing, screws, cranks, and levers, and the dynamics of machinery. In the study of prime movers, special attention is given to turbine and other water motors, and to steam engines. In the theory of machine construction, problems involving the strength and design of machines, and the materials used in their construction, and also involving the application of the principles of electricity, are studied at length in connection with such examples as illustrate the best practice. The instruction in millwork covers the distribution of power and the arrangement of shafting and machinery in manufacturing establishments. Practical problems involving the strength of shafting, belting, and gearing are fully treated. Tests are made to determine the efficiency of machines, and the value of lubricants.

Design of Shop Machinery.—The student is taught to design one or more of the standard machines used in shops. He is shown how to combine his theoretical and his practical knowledge so as to conform to the best mechanical practice. He designs one or more complete machines and makes a detailed drawing of each part for shop use. The drawings that possess merit and are carefully worked out are subsequently used in the shops. Instruction is also given in blue-print work. The course is conducted in every respect to represent, as far as possible, the operations of actual business.

Designs in Engineering and in Machine Construction.—Contemporaneously with the study of theory students are required to work out problems in design. They are furnished with the usual data for a design, and the kind or type of structure or machine is indicated. They are then expected to make the necessary calculations, paying particular attention to proportioning the different parts so as to secure strength, simplicity, and effect, and to present at a specific date complete working drawings, giving full details, accompanied by bills of materials, estimates, and specifications.

A course in **Thermodynamics** embraces the study of the principles governing the action of heat engines in general, hot-air and gas engines, air compressors, compressed-air engines, and refrigerating apparatus.

Steam Engineering.—The work in this branch covers the practical use of steam. Furnace and boilers are studied with reference to proper combustion of fuel; to securing maximum evaporative efficiency; and to proportioning the parts for strength, durability, and accessibility for cleaning and repairs. The care and management of engines and boilers, both in use and out of use, are fully considered. A study is made of the principle steam pumps and pumping engines. The practical application of steam to heating and ventilating purposes is treated by lectures, and by inspection of actual plants. Tests are made to determine the value of fuels, quality of steam, and the efficiency of furnaces, boilers, and

Marine Engineering and Naval Architecture.—Th
this branch comprises the study of marine steam
instruments, the hydraulics of ship building,
bility and trim, weight and centre of gravity,

strength, speed and resistance, propulsion by sails and by steam engines, laying-off and taking-on, and other topics.

Metallurgy.—A course of instruction by lectures and recitations is given upon the subjects of fuel, refractory material, iron, and steel. The lectures are illustrated by charts and drawings of furnaces and appliances used and by samples of furnace products.

Primary and Storage Batteries.—A brief course combines theory and experimental work in measuring electromotive forces, polarization, internal resistance, and efficiency. Several types of storage cells are in constant use.

Electrical Measurements.—This course extends through an entire year and is devoted to practical work in the laboratory with the most modern apparatus. In addition to exact methods of measuring resistances, electromotive forces, and currents, it includes the calibration of the measuring instruments employed; the determination of capacity in absolute measure, the measurement of inductances, and the determination of the hysteresis curves of iron and steel.

Dynamo Electric Machinery.—The time given to this course is about equally divided between the study of the theory of generators and motors, and the determination in the electrical engineering laboratory of characteristic curves, of the series turns required to compound for constant potential, and of the efficiency of generators and motors.

Alternating Current Machinery.—To the theoretical study of this subject has recently been added laboratory work with alternators, transformers, and two-phase or three-phase transmission. Highly satisfactory machines have been built by electrical engineering students in the engineering shops.

Design of Electrical Machinery.—The course in electrical design gives the fundamental principles and illustrates them by numerical calculations of electromagnets, of direct current machines, motors, alternators, and transformers. The lecture course is supplemented by exercises in drawing in which each student makes working drawings to accompany his own designs.

Visits of Inspection.—As often as practicable, visits are paid to neighboring manufacturing establishments, and to electric-light and electric-power stations, for the purpose of acquiring a knowledge of the methods employed in building, in the construction of bridges, machinery, and ships, and the best practice in electrical manufacturing and engineering on a large scale.

EXAMINATIONS.

Examinations, usually in writing, are held at the end of each semester, but the classes are liable to be examined at any time, without notice, on any portion of their previous work.

FACILITIES FOR INSTRUCTION.

The collections for illustrating the instruction given comprise models, drawings, photographs, lithographs, and blue prints representing trusses, arches, and details of construction in iron, wood, and stone; also shapes of iron, working models of turbines, and engines, and working drawings of a number of bridges. These collections are receiving additions from year to year, by gift and purchase, and are invaluable to the student.

Tests of engines and boilers, and of machinery in general, will be made on request, and the profit of such work devoted to extending the facilities of the engineering laboratory. The data of all experiments and tests made are kept in the laboratory records. Tests of materials are also conducted for private parties, and reported upon when desired.

All the laboratory work is on a practical basis, and is done as nearly as possible as it would be done in any well arranged manufacturing establishment. There is a metallurgical laboratory connected with the chemical laboratory, amply supplied with assay furnaces and other appliances. The latest and best books on professional subjects are added yearly to the library, where they are accessible to all; and frequent references are made to them in the class room as the various subjects are brought forward.

PHYSICAL LABORATORY.

For a description of the physical laboratory, see page 29.

CHEMICAL LABORATORIES.

For a description of the chemical laboratories, see page 30.

ENGINEERING SHOPS.

The engineering shops are in a group of connected buildings, containing about 17,000 square feet of floor space devoted to shop work.

The *Wood and Pattern Shop*, 40 by 80 feet, is equipped with the tools and machinery usually found in a first-class establishment. One end of the shop contains the work-benches and the tools needed for hand work; the other contains a good variety of wood-working machinery, much of which was built in the shops. Above the wood-room a pattern-loft, 40 by 80 feet, contains a large collection of patterns made by students during the past few years.

The *Foundry*, 30 by 40 feet, is equipped with two iron cupola furnaces, one capable of melting six hundred pounds, and the other two tons, of iron an hour; two brass furnaces of a capacity of 150 pounds each; a modern core-oven; elevators; crane; blo[illegible]pply of flasks and small tools adapted to the work to b[illegible] part of this equipment was made in the shops.

The *Forge Shop*, 30 by 40 feet, contains twelve forges and anvils, a drill press, an emery wheel, pressure and exhaust blowers, and many small tools.

The *Machine Shop*, 40 by 80 feet, contains lathes, planing machines, drill presses, a milling machine, a shaper, and other tools for working in iron. Much of this machinery was made in the shop. The tool room is well supplied with small tools.

The *Drawing Room*, 32 by 54 feet, is supplied with blue-print apparatus, drawing desks, and other furniture needed for the use to which the room is put.

The central portion of the building, 32 by 54 feet, contains in the basement a well-ventilated wash-room, and on the first floor an engine room with a 10 by 30 Reynolds-Corliss engine, a storeroom and an office for the superintendent. The attic is used for storage.

New machinery is added to each shop from time to time for the accommodation of engineering students and others desiring instruction and practice in the use of tools for working in wood and metal. Opportunity is afforded to become familiar with the more common materials and forms of construction used in engineering structures, buildings, and machinery. In all work an effort is made to follow the practice of the best shops.

ENGINEERING LABORATORY.

The *Engineering Laboratory*, 40 by 80 feet, is devoted to experimental work in connection with the testing of engines, boilers, pumps, indicators, belting, gearing, lubricants, and strength of materials, and to such original work as can be undertaken with advantage. The work also extends to the testing of engines, boilers, and water-wheels of neighboring mills and electric plants. The Knowles and the Gordon pumping engines at the City Water Works have been fitted up by the company with especial reference to the convenience of engineering students in making tests. The equipment contains, among other things, a 100,000-pound Olsen testing machine; a 2,000-pound cement testing machine; Thurston and Ashcroft oil testing machines; a Stirling boiler for high pressure; a high speed automatic engine; a Corliss engine; a Rider hot-air engine; Wheeler and Wainright surface condensers; an Alden absorption dynamometer; a Giddings traction recording dynamometer; an Emerson power-scale; several other forms of dynamometers; a large, electrically driven chronograph, built in the laboratory; a 36-foot open mercury column; special apparatus for testing pressure and vacuum-gauges and indicator springs; gauges; indicators; thermometers; pyrometers; tachometers; standard weights; steam pumps and injectors; rotary and centrifugal pumps; water meters; water motors, including a special universal water motor, built in the laboratory, together with pressure tanks and pumps for testing motors; hydraulic rams; water-wheels; air-pumps; blowers; apparatus for making tests on radiators and pipe coverings; apparatus for furnace gas analysis; a street railway motor; and other apparatus having special reference to work of investigation.

ELECTRICAL LABORATORY.

The entire ground floor of the physical laboratory is devoted to experimental work in electricity. The rooms for electrical measurements contain solid stone-capped piers, and currents under a pressure ranging from 2 to 220 volts are available.

The laboratory is supplied with apparatus from the best American and European makers. It contains galvanometers and resistance boxes from Hartmann & Braun, Elliott Brothers, Nalder Brothers & Co., Queen & Co., and Willyoung & Co.; a series of ammeters and voltmeters from the Weston Co., for both direct and alternating currents; also condensers, electrodynamometers, electrostatic voltmeters, three Kelvin balances, standard cells, standard resistance coils, standard condensers and an Ayrton & Perry standard of self-inductance.

In the dynamo room are two 10-light arc machines, two constant potential machines, and a 33 K. W. composite wound alternator made for the University by the Fort Wayne Electrical Corporation. These are all run from a counter shaft which is driven by a 50 H. P. 220-volt motor made by the Excelsior Electric Co. In addition, a small alternator for single phase, two-phase, or three-phase experimental work is run by a separate motor. Arc lamps, banks of incandescent lamps, resistances, rheostats, transformers and storage batteries complete the equipment. The transformers include a set for conversion from two-phase to three-phase transmission and the reverse. A well equipped photometric room adjoins the dynamo room.

The new University lighting plant, consisting of two 75 K. W. Thompson-Ryan generators and one 25 K. W. Westinghouse generator, is available for instruction in the department. The two large machines are connected by the Arnold system to two 15x14 engines and run at a speed of 250 revolutions a minute. The Westinghouse machine is directly connected to a Russell 9x12 automatic engine running at 300 revolutions a minute. The latter is located at the hospitals. These may be lighted independently, or may be supplied with current from the central plant on the campus by means of heavy mains and a "booster." The system is a 220-volt one throughout, with both [illegible] and arc lamps (two in series) on the same circuits. All [illegible] and mains are underground, except those running [illegible] to the hospitals and to the observatory.

The *Forge Shop*, 30 by 40 feet, c
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The *Machine Shop*, 40 by 80 fe
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MUSEUMS.

atories, libraries, and col-
ethnology, mineralogy, palæ-
information concerning the

OBSERVATORY.

al observatory, see page 24.

ASIUMS.

nasiums, see page 34.

NGINEERING SOCIETY.

ety, composed of and officered by students of
weekly meetings, at which papers of technical
reports made upon observation and experiments.
maintained by the Society, accessible to all students
Several engineers of prominence have spoken before
year. An annual, called the Technic, containing
the Society, abstracts of theses, contributed articles
other matters of professional interest, is published by

COURSES OF INSTRUCTION.

Courses of Instruction are subject to change from
to time; those announced for the year 1898–99 and
red for graduation, as stated on pages 163 to 165, are
ribed below, together with some advanced technical
rses which may be taken as electives. The amount
credit toward graduation assigned to each course is
dicated by the expressions *one hour*, *two hours*, etc., an
our of credit being given for the satisfactory completion
of work equivalent to one exercise a week during one

semester. Lectures and recitations are usually one hour in length, but in laboratory work, drawing, and other practical exercises, a longer attendance is required in order to secure an hour of credit.

The courses given in the department of Literature, Science, and the Arts, and described on pages 59 to 110, are (with the exception of the courses in French and in German, for which special permission is required) all open as electives to engineering students who are qualified to pursue them with advantage.

FRENCH.

FIRST SEMESTER.

A. Beginners' Course. Two sections. *Three hours.* Mr. FRANK.
C. Descriptive Prose. *Three hours.* Mr. FRANK.
D. Scientific Reading. *Three hours.* Mr. FRANK.

SECOND SEMESTER.

B. Narrative Prose. Two sections. *Three hours.* Mr. FRANK.
E. Current Scientific Literature. *Three hours.* Mr. FRANK.

GERMAN.

FIRST SEMESTER.

A. Elementary Course. Thomas's German Grammar, and a German Reader. *Three hours.* Mr. LAUTNER.
C. Descriptive Prose. Two sections. *Three hours.* Mr. LAUTNER.
D. Scientific Reading. Four sections. *Three hours.* Mr. LAUTNER.

SECOND SEMESTER.

B. Elementary Course continued. *Three hours.* Mr. LAUTNER.
E. Scientific Reading continued. Four sections. *Three hours.* Mr. LAUTNER.

ENGLISH.

FIRST SEMESTER.

1. Paragraph Writing. Four sections. *Two hours.* Mr. SMITH.

SECOND SEMESTER.

1*a*. Theme Writing. Three sections. *Two hours.* Mr. SMITH.

MATHEMATICS.

Students of engineering are required to take in order Courses 1, 2, 3, 4, 6. They are also required to take Course *1b*, unless they have passed a satisfactory examination for admission in plane trigonometry, but no credit toward graduation is given for Course *1b*.

FIRST SEMESTER.

1. Algebra and Analytic Geometry (I). Four sections. *Four hours.* Mr. HALL, Mr. GODDARD, Mr. BUTTS, and Mr. WHITNEY.

1b. Plane Trigonometry. Two sections. *Two hours.* Mr. WHITNEY.

3. Calculus. Four sections. *Five hours.* Assistant Professor MARKLEY, Mr. HALL, and Dr. GLOVER.

6. Calculus and Mechanics (II). Three sections. *Four hours.* Mr. HALL and Dr. GLOVER.

SECOND SEMESTER.

2. Analytic Geometry (II). Five sections. *Four hours.* Mr. HALL, Mr. GODDARD, Mr. BUTTS, and Mr. WHITNEY.

4. Calculus and Mechanics (I). Four sections. *Five hours.* Assistant Professor MARKLEY, Mr. HALL, and Dr. GLOVER.

PHYSICS.

FIRST SEMESTER.

2. Heat, Electricity, and Magnetism. Lectures and recitations. *Five hours.* Professor CARHART.

Course 2 must be preceded by Course 1 and by a course in general or in analytical chemistry.

3b. Physical Laboratory Work for Beginners. Five sections. *Two hours.* Assistant Professor REED and Dr. TROWBRIDGE.

Course *3b* is also given in the second semester. It must be preceded or accompanied by Course 1. Students presenting notebooks from High School physical laboratories approved by this department, may be allowed *three hours* of credit for *two hours* of work. Fee, $2.

7. Mathematical Electricity and Magnetism. *Three hours.* Dr. TROWBRIDGE.

Course 7 must be preceded by Course 2. A knowledge of calculus is required.

8. Heat. Laboratory work. *Two hours.* Dr. GUTHE.

Course 8 must be preceded by Course 2. Fee, $2.

9. Theory of Heat: Preston. *Two hours.* Professor CARHART.

SECOND SEMESTER.

1. Mechanics, Sound, and Light. Lectures and recitations. *Five hours.* Assistant Professor REED.

For Course 1 a knowledge of plane trigonometry is indispensable.

3*b*. Physical Laboratory Work for Beginners. *Two hours.* Assistant Professor REED and Dr. TROWBRIDGE.

See note to Course 3*b* in first semester.

3*c*. Laboratory work in Mechanical and Electrical Measurements. Three sections. *Three hours.* Dr. GUTHE and Mr. JONES.

Course 3*c* must be preceded by Course 2. It is designed for students who wish to prepare for the study of dynamo-electric machinery. Fee, $3.

10. Mathematical Electricity and Magnetism. *Two hours.* Dr. TROWBRIDGE.

Course 10 must be preceded by Course 7.

16. Theories of Solutions, Electrolytes, and the Voltaic Cell. Lectures and laboratory work. *Three hours.* Dr. GUTHE.

Course 16 must be preceded by Course 2 in electrical engineering and by Course 1 in general chemistry. It is also desirable that the student have had laboratory work in chemistry. Fee, $1.

GENERAL CHEMISTRY.

FIRST SEMESTER.

1. Elementary Inorganic Chemistry. Experimental lectures and recitations. *Three hours.* Mr. HIGLEY.

EITHER FIRST OR SECOND SEMESTER.

2. Laboratory Work in General Inorganic Chemistry. *Three or more hours.* Mr. HIGLEY and Mr. LICHTY.

Course 2 must be preceded or accompanied by Course 1 or an equivalent. It is supplementary to Course 1 and covers in the laboratory the ground covered by lectures in Course 1.

ANALYTICAL CHEMISTRY AND ORGANIC CHEMISTRY.

FIRST SEMESTER.

1. Qualitative Analysis. Recitations and laboratory work. *Ten hours.* Professor O. C. JOHNSON and Mr. BROWN.

3. First Steps in Qualitative Analysis. Recitations and laboratory work. *Five hours.* Professor O. C. JOHNSON.

Course 3 must be preceded by Course 1 in general chemistry, or an equivalent. It is continued in Course 3*a* in the second semester, and the two Courses, 3 and 3*a*, together, are equivalent to Course 1.

5. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.

10. Organic Chemistry. Lectures and library studies. *Five hours.* Professor PRESCOTT.

Course 10 must be preceded by Course 1 or 3.

11. Organic Preparations. Laboratory work. *Two hours.* Dr. GOMBERG.

Course 11 must be preceded or accompanied by Course 10.

21. Technical Gas Analysis. Laboratory work. *One hour.* Professor E. D. CAMPBELL and Mr. WHITE.

31. Chemical Technology. A study of chemical manipulations and reactions on a manufacturing scale. The chief subjects treated are: Fuels, water, the acid and alkali industry, cements, glass, and the destructive distillation of coal and wood with recovery of by-products. Lectures and assigned reading. *Five hours.* Mr. WHITE.

Course 31 must be preceded by Course 1 or 3*a*.

SECOND SEMESTER.

3. First Steps in Qualitative Analysis. Recitations and laboratory work. *Five hours.* Professor O. C. JOHNSON.

3*a*. Qualitative Analysis in continuation of Course 3. Recitations and laboratory work. *Five hours.* Professor O. C. JOHNSON and Mr. BROWN.

See note to Course 3 in first semester.

4. Quantitative Analysis. Beginning Course. Recitations and laboratory work. *Seven hours.* Professor E. D. CAMPBELL.

Course 4 is open to those who have taken Course 1 or Course 3*a*.

32. Organic Technology. The industrial chemistry of organic compounds. Among the subjects treated are: Starch, glucose, and sugar; fermentation and distillation; fats, oils, and soaps; bleaching and dyeing; tanning; paper-manufacture. Lectures and assigned reading. *Five hours.* Mr. WHITE.

Course 32 must be preceded by Courses 10 and 31.

34. Special Chemistry. Work selected from the advanced courses offered in the Department of Literature, Science, and the Arts. *Five hours.* Professor E. D. CAMPBELL.

METALLURGY.

FIRST SEMESTER.

1. Fuel and Refractory Material, Iron and Steel. *Three hours.* Professor E. D. CAMPBELL.

Course 1 must be preceded by Course 1 or 3 in analytical chemistry, or by Course 1 in general chemistry.

2. Micro-Metallography. The study of the microscopic structure of metals as related to their physical and chemical properties. Laboratory work with reading. *One hour.* Professor E. D. CAMPBELL.

Course 2 is open only to those who have completed Course 1, and who receive special permission.

ASTRONOMY.

EITHER FIRST OR SECOND SEMESTER.

4. Practical Astronomy. Use of sextant and transit. *Three hours.* Professor HALL.

Course 4 requires a knowledge of spherical trigonometry and of differential and integral calculus.

SECOND SEMESTER.

13. Theory of Least Squares. *Two hours.* Professor HALL.

MINERALOGY.

EITHER FIRST OR SECOND SEMESTER.

1. Lectures and practice. *Two hours.* Professor PETTEE.

For Course 1 an elementary knowledge of chemistry is desirable.

GEOLOGY.

SECOND SEMESTER.

12. Dynamical, Structural, and Physical Geology. Text-book, lectures, short thesis. *Three hours.* Professor RUSSELL.

DRAWING.

FIRST SEMESTER.

1. Geometrical Drawing. Four sections. *Two hours.* Mr. GOULDING.

4. Free-Hand Drawing. Pencil-Work; Pen and Ink; Sketching. Four sections. *Three hours.* Professor DENISON, Mr. WRENTMORE, and Miss HUNT.

10. Continuation of Course 8. *Two hours.* Professor DENISON and Miss HUNT.

Course 10 must be preceded by Courses 4, 7, 8.

13. Water-Color Drawing. *Three hours.* Professor DENISON and Miss HUNT.

Course 13 must be preceded by Course 8. It can be taken only by special permission.

SECOND SEMESTER.

5. Descriptive Geometry. Recitations and drawing. Five sections. *Four hours.* Mr. WRENTMORE and Mr. GOULDING.
   Course 5 must be preceded by Course 1.
6. Shades, Shadows, and Perspective. *Three hours.* Professor DENISON.
   Course 6 must be preceded by Course 5.
7. Free-Hand Drawing (advanced). *Three hours.* Professor DENISON and Miss HUNT.
8. Architectural and Water-Color Drawing. *Two hours.* Professor DENISON, Mr. GOULDING, and Miss HUNT.
   Course 8 must be preceded by Course 1 or 4.
14. Stereotomy. *Two hours.* Professor DENISON.
    Course 14 must be preceded by Course 5.
16. Free-Hand Lettering. *Two hours.* Mr. WRENTMORE.
    Course 16 must be preceded by Course 1.
17. Spherical Projections. *One hour.* Professor DENISON.
    Course 17 must be preceded by Course 5.

SHOP PRACTICE.

All courses in shop practice are under the direction of Professor C. G. TAYLOR, to whom application must be made for assignment to sections. Professor TAYLOR also gives a few lectures on appliances and materials in each of the Courses 1*a*, 2*a*, 3*a*, 4*a*. These courses may also be continued by advanced students as Courses 1*b*, 2*b*, 3*b*, 4*b*.

Special arrangements are made for students who desire to take more advanced work in the shop courses with a view to preparing themselves for teaching these subjects.

EITHER FIRST OR SECOND SEMESTER.

1*a*. Wood Work and Pattern Work. Three sections. *Two hours.* Mr. PURFIELD. Fee, $5.

2*a*. Forging. Five sections. *Two hours.* Mr. McDONALD. Fee, $5.

3*a*. Foundary Work. Three sections. *Two hours.* Mr. WINSLOW. Fee, 5.

4*a*. Iron Work. Three sections. *Three hours.* Mr. SMOOTS. Fee, $5.

SURVEYING.

FIRST SEMESTER.

1. Lectures and Field Practice with Instruments. *Four hours.* Professor J. B. DAVIS.
   The field practice in Course 1 continues during favorable weather until Christmas.

4. Use of Instruments. *One hour.* Professor J. B. DAVIS.
6. Continuation of Course 5. Phototopography. Field work and drawing. *One hour.* Professor J. B. DAVIS.
The ability to make photographic negatives will be of service.

SECOND SEMESTER.

2. Continuation of Course 1. Lectures and text-book. *Five hours.* Professor J. B. DAVIS.
Course 2 must be preceded by Course 1.
3. Field Work in Camp for Four Weeks. Professor J. B. DAVIS.
Course 3 must be preceded by Courses 1 and 2. Except by special permission it is open only to students who are working for a degree in civil engineering.
5. Topography. Transit and Stadia. Plane Table. Field work and drawing. *Three hours.* Professor J. B. DAVIS.
Course 5 is given four times a week for thirteen weeks.
7. Geodesy. Geodetic Methods. Lectures and text-book. *Three hours.* Professor J. B. DAVIS.
Course 7 must be preceded by Courses 1 and 2. It is given five times a week for twelve weeks.

CIVIL ENGINEERING.

FIRST SEMESTER.

1. Municipal Engineering. Lectures and text-book. *Five hours.* Professor J. B. DAVIS.
4. Graphical Analysis of Structures. *Two hours.* Professor GREENE.
Course 4 must be preceded by Course 3.
5. Strength and Resistance of Materials. Two sections. *Two hours.* Professor GREENE.
Course 5 must be preceded by Course 4 in mathematics. In 1899–1900 it will be given in the second semester also.
6. Engineering. Theory of construction. *One hour.* Professor GREENE.
Course 6 must be preceded by Course 4 in mathematics.
7. Engineering Design. *Five hours.* Professor GREENE.
Course 7 accompanies Courses 5 and 6.

Primarily for Graduates.

11. Engineering Design, advanced. *Five hours.* Professor GREENE.
12. Water Supply and Sewerage. *Two hours.* Professor GREENE.

SECOND SEMESTER.

2. Tests of Materials. *One hour.* Professor GREENE.

3. Graphical Analysis of Structures. Two sections. *Two hours.* Professor GREENE.
   Course 3 must be preceded by Course 4 in mathematics.
8. Engineering. Theory of construction. *Four hours.* Professor GREENE.
   Course 8 must be preceded by Course 3.
9. Hydraulics. *One hour.* Professor GREENE.
   Course 9 must be preceded by Course 6 in mathematics. In 1899–1900 it will be given in the first semester also.
10. Water Supply and Sewerage. *One hour.* Professor GREENE.
    Course 10 must be preceded or accompanied by Course 9.

Primarily for Graduates.

13. Economics of Railway Location. *One hour.* Professor GREENE.
14. Contracts and Specifications. *One hour.* Professor J. B. DAVIS.

MECHANICAL ENGINEERING.

FIRST SEMESTER.

2. Elements of Mechanism. *Two hours.* Professor DENISON.
   Course 2 must be preceded by Course 1 in mathematics, and by Courses 1 and 5 in drawing.
3. Dynamics of Machinery. *One hour.* Mr. GRIMES.
   Course 3 must be preceded by Course 4 in mathematics and by Course 1 in physics.
4. Boilers. Steam Engines. *Two hours.* Mr. ALLEN.
   Course 4 must be preceded or accompanied by Course 3.
5. Mechanism. Valve Gears. *Three hours.* Professor DENISON.
8. Theory of Machine Design. *Three hours.* Professor COOLEY.
   Course 8 must be preceded or accompanied by Course 5 in civil engineering.

Primarily for Graduates.

16. Heating and Ventilation. *Two hours.* Mr. ALLEN.
    Course 16 must be preceded by Course 4.
18. Hydraulic Machinery. *Two hours.* Professor COOLEY.
    Course 18 must be preceded by Course 7 or 15.
19. Gas Engines. *Two hours.* Professor COOLEY.
    Course 19 must be preceded by Course 13.
20. Laboratory Work. Advanced Course. *Two hours.* Mr. STEVENS.
    Course 20 must be preceded by Courses 9 and 11.

EITHER FIRST OR SECOND SEMESTER.

6. Machine Design. Machine Tools. *Two hours.* Professor C. G. TAYLOR.
   Course 6 must be preceded or accompanied by Course 2, and be preceded by Courses 1, 4, 5 in drawing.

9. Laboratory Work. Power Measurements. Machine Testing. *Two hours.* Professor COOLEY, Mr. ALLEN, and Mr. STEVENS. Fee, $5.
   Course 9 must be preceded by Course 3.
10. Machine Design. Hoisting Machinery. *Three hours.* Professor COOLEY and Mr. GRIMES.
   Course 10 should be preceded or accompanied by Course 8.
11. Laboratory Work. Steam Engineering. *Three hours.* Professor COOLEY, Mr. ALLEN, and Mr. STEVENS. Fee, $5.
   Course 11 must be preceded or accompanied by Course 4, 7, or 15.
12. Machine Design. Engines and Boilers. *Two hours.* Professor COOLEY and Mr. GRIMES.
   Course 12 must be preceded or accompanied by Course 8.

SECOND SEMESTER.

1. Elements of Machines. Nomenclature. *Two hours.* Mr. STEVENS.
7. Hydraulic Machinery. *One hour.* Professor COOLEY.
   Course 7 must be preceded by Course 2.
13. Steam Engines and other Heat Engines. *Three hours.* Mr. ALLEN.
   Course 13 must be preceded by Course 4.
14. Power Plants. Power Transmission. *Two hours.* Professor COOLEY.
   Course 14 must be preceded by Course 4 or 7.
15. Prime Movers. Water Wheels and Steam Engines. *Two hours.* Professor COOLEY and Mr. ALLEN.
   Course 15 must be preceded by Course 3.

Primarily for Graduates.

17. Compressed Air. Mechanical Refrigeration. *Two hours.* Professor COOLEY.
   Course 17 must be preceded by Course 13.
21. Specifications and Contracts. *One hour.* Mr. ALLEN.
   Course 21 must be preceded or accompanied by Course 14.
22. Thermodynamics. Advanced Course. *Three hours.* Mr. ALLEN.
   Course 22 must be preceded by Course 13.
23. Machine Design. Advanced Course. *Three hours.* Mr. STEVENS.
   Course 22 must be preceded by Courses 10 and 12.

ELECTRICAL ENGINEERING.

FIRST SEMESTER.

2. Electrical Measurements: Carhart and Patterson's Electrical Measurements. Recitations and laboratory work. *Four hours.* Assistant Professor REED, Dr. GUTHE, and Dr. TROWBRIDGE.
   Course 2 must be preceded by Courses 1, 2, 3 in physics; a knowledge of calculus is required. Fee $3.

5. Alternate Current Apparatus. Recitations and laboratory work. *Three hours.* Professor CARHART and Mr. JONES.
   Course 5 must be preceded by Course 4. Fee, $1.
6. Photometry of Electric Lamps: Palaz's Photometry. Recitations and laboratory work. *One hour.* Mr. JONES. Fee, $1.
   In 1899–1900 Course 6 may be expected in the second semester also.
7. Design of Electrical Machinery and Appliances. *Four hours.* Professor CARHART and Mr. JONES.
   Course 7 must be preceded by Course 4*a* or 4*b*.

SECOND SEMESTER.

1. Primary and Secondary Batteries: Carhart's Primary Batteries. Recitations and laboratory work. Six sections. *Two hours.* Dr. GUTHE.
   Course 1 must be preceded by Courses 1, 2, 3 in physics, and by a course in general or in analytical chemistry. Fee, $1.
3. Electrical Measurements. Continuation of Course 2. Lectures and laboratory work. *Three hours.* Dr. GUTHE and Dr. TROWBRIDGE. Fee, $2.

4*a*. Dynamo-Electric Machinery: Thompson's Dynamo-Electric Machinery. Lectures, recitations, laboratory work. *Four hours.* Professor CARHART and Mr. JONES.
Course 4*a* must be preceded by Course 2. Fee, $2.

4*b*. Dynamo-Electric Machinery, as in Course 4*a*. *Three hours.* Professor CARHART and Mr. JONES.
Course 4*b* must be preceded by Course 3*c* in physics. Fee, $1.

8. Distribution of Electricity. Lectures and recitations. *Two hours.* Mr. JONES.
   Course 8 must be preceded by Course 4*a*.

Primarily for Graduates.

9. Alternating Current Phenomena: Steinmetz. *Two hours.* Professor CARHART.
   Course 9 must be preceded by Course 5.

MARINE ENGINEERING.

Course 2 is designed for graduates and for undergraduates who have had the necessary preliminary training. Courses 1 and 3 are for graduates.

FIRST SEMESTER.

1. Naval Architecture. Professor COOLEY.

SECOND SEMESTER.

2. Marine Engines. *Three hours.* Professor COOLEY.
3. Ship-Building. Professor COOLEY.

MINING ENGINEERING.

SECOND SEMESTER.

1. Exploitation of Mines. Methods of opening, laying-out, and working mines. *Five hours.* Professor PETTEE.

Course 1 requires a knowledge of mineralogy and general geology

SEQUENCE OF STUDIES.

The studies of the first and second years are *prescribed,* except so far as credit obtained in advance may leave a place for substitutions, or the presentation of Latin as one of the requirements for admission may make some change necessary. In the third and fourth years some opportunity for elective studies is open.

The work for the first year is the same for all students. At the end of that year, the student makes his choice to continue in the civil engineering, the mechanical engineering, the electrical engineering, or the chemical engineering course. The order of studies for the first year is given below. An order of studies for the years following the first is given for the several courses in the announcements issued annually by the Department.

ORDER OF STUDIES FOR FIRST YEAR.

FIRST SEMESTER.

	EXERCISES PER WEEK.
French D or German D.*	3
English 1, Paragraph writing.	2
Mathematics 1, Algebra and Analytic Geometry (I).	4
Drawing 1, Elementary Drawing.	2
Drawing 4, Freehand Drawing.	3
Shop Practice *2a*, Forging (one-half of class); or *1a*, Woodwork (one-half of class).	2
	16

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* The student who enters with German will continue that language through the first year and begin French in the second year. The student who enters with French will continue French a year and then begin German. The student who enters with Latin will take French A or German A.

SECOND SEMESTER.

French E or German E.	3
Physics 1, Mechanics, Sound, and Light.	5
Mathematics 2, Analytic Geometry (II).	4
Drawing 5, Descriptive Geometry.	4
Shop Practice 1*a*, Woodwork (one-half of class); or 2*a*, Forging (one-half of class).	2
	18

RULES AND REGULATIONS.

The work of students must be arranged in conformity with the following regulations:

a. Before entering on any study the student must give the instructor satisfactory evidence that he is prepared to pursue it with advantage.

b. No student is allowed to elect merely a part of a course, without special permission of the Faculty.

c. No credit is allowed a student for work in any course, unless the election of the work is formally made and reported to the Registrar before the work is begun.

d, After the first Saturday of each semester no study can be taken up or dropped without special permission of the Faculty. All requests for permission to take up or drop studies must be made in writing on specially provided blank forms and in accordance with the rules printed thereon.

e. The Faculty requires a student to drop a part of his work at any time, if in its opinion he is undertaking too much; or to take additional work, if it thinks he is not sufficiently employed.

f. The Faculty reserves the right to withdraw the offer of any study not chosen by at least six persons.

g. In cases of exceptional proficiency permission to take hours in addition to those named in the published schedule is granted by the Faculty on special request; but in all cases requests for permission to take an additional number of hours must be made in writing on a blank form provided by the Dean, and must be deposited in the Dean's box on or before the *first Saturday* of the semester during which the additional work is desired. No permission to take extra hours is granted to students in their first semester of residence.

h. After matriculation, a student cannot, without special permission of the Faculty be admitted to examination in any one of the courses given, until he has received in the University the regular instruction in such course.

REQUIREMENTS FOR GRADUATION.

THE DEGREE OF BACHELOR OF SCIENCE.

To earn the degree of Bachelor of Science in civil, mechanical, electrical, or chemical engineering, the student must secure *one hundred and thirty Hours of Credit** in a prescribed course of study, as given below, and must present a satisfactory *thesis*. The diploma given indicates the line of study pursued. A time limit is not fixed; but four years is usually needed for the completion of the 130 hours of work.

Bachelors of Art, of Philosophy, of Science, and of Letters, of this University, and graduates of any other reputable college, are excused from some portions of the general requirements, and are recommended for the same degree with the regular students upon completing the remaining requirements. This work can be done in two years. The culture imparted by classical or other liberal training will be found to have its uses for one engaged in engineering work, and previous discipline of the faculties in exact research will enable the professional student to master more easily the requirements of the course. All the time the student can devote to general studies before taking up specialties will be well spent.

A choice between the four courses in engineering need not be made before the end of the first year.

GENERAL REQUIREMENTS.

The *general requirements* are as follows:

In French and German: fifteen hours, viz.: Courses A, B, C, in one language, and Courses D, E, in the other.
In English: Courses 1, 1*a*.
In Mathematics: Courses 1, 2, 3, 4.
In Physics: Courses 1, 2.
In Drawing: Courses 1, 4, 5.
In Shop Practice: Courses 1*a*, 2*a*.
In Mechanical Engineering: Courses 2, 3.

SPECIAL REQUIREMENTS.

The *special requirements* in the several courses are as follows:

1. *In Civil Engineering.*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Civil Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

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* For explanation of the term Hour of Credit see page 150, and for further information in regard to the courses prescribed for graduation, see pages 150 to 160.

In Mathematics: Course 6.
In Physics: Course 3*c*.
In General Chemistry: Course 2; or Analytical Chemistry: Course 3.
In Mineralogy: Course 1.
In Geology: Course 12.
In Astronomy: Course 4.
In Drawing: Courses 4, 14.
In Surveying: Courses 1, 2, 3, 5, 6.
In Civil Engineering: Courses 3, 4, 5, 6, 7, 8, 9.
In Mechanical Engineering: Course 15.
In Electrical Engineering: Course 4*b*.

In Elective Studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred and thirty Hours of Credit.*

2. *In Mechanical Engineering.*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Mechanical Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Mathematics: Course 6.
In Physics: Course 3*c*.
In General Chemistry: Course 2; or Analytical Chemistry: Course 3.
In Drawing: Course 4.
In Shop Practice: Courses 1*b*, 3*a*, 4*a*, 4*b*.
In Surveying: Course 4.
In Civil Engineering: Courses 3, 5, 9.
In Mechanical Engineering: Courses 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.
In Electrical Engineering: Course 4*b*.
In Metallurgy: Course 1.

In Elective Studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred and thirty Hours of Credit.*

3. *In Electrical Engineering.*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Electrical Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Mathematics: Course 6.
In Physics: Course 3*b*.
In General Chemistry: Course 2; or Analytical Chemistry: Course 3.
In Drawing: Course 4.

In Shop Practice: Courses 1*b*, 3*a*, 4*a*, 4*b*.
In Civil Engineering: Courses 3, 5.
In Mechanical Engineering: Courses 4, 5, 6, 7, 15.
In Electrical Engineering: Courses 1, 2, 3, 4*a*, 5, 6, 7.
In Elective Studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred and thirty Hours of Credit.*

4. In Chemical Engineering.

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Chemical Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Physics: Course 3*c*.
In Analytical Chemistry: Courses 1, 4, 5, 10, 11, 21, 31, 32, 34.
In Metallurgy: Course 1.
In Surveying: Course 4.
In Mechanical Engineering: Courses 2, 4, 6, 7, 15.
In Electrical Engineering: Course 4*b*.
In Elective Studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred and thirty Hours of Credit.*

GRADUATE COURSES.

THE DEGREE OF MASTER OF SCIENCE.

A candidate for the degree of Master of Science in this Department must have previously received the engineering degree of Bachelor of Science from this University, or, if graduated elsewhere, must satisfy the Faculty that he possesses equivalent attainments.

He must choose a *major* subject, which shall occupy one-half of his time, from the work given in this Department, and two *minor* subjects, each to occupy one-fourth of his time, to be selected from any work open to engineering students; all of the work, however, shall be subject to the approval of the Faculty. Study and residence for not less than one year are required. Among the courses described on previous pages (152 to 160), the following are arranged primarily for graduates:

In Physics: Courses 7, 9, 10, 18.
In Civil Engineering: Courses 11, 12, 13, 14.
In electrical engineering: Course 9.
In Mechanical Engineering: Courses 16 to 23, inclusive.

If a candidate for the degree of Master of Science desires to have his major subject count towards the degree of Civil Engineer, Mechanical

Engineer, or Electrical Engineer, such major subject must be advanced work in the course in which he took his bachelor's degree, and he must submit a satisfactory thesis before the degree of Engineer will be conferred.

THE DEGREES OF CIVIL ENGINEER, MECHANICAL ENGINEER, AND ELECTRICAL ENGINEER.

The conditions on which the degree of Civil Engineer, as a second degree, is conferred are as follows:

The degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the degree for a course in civil engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and, in addition, have been engaged in professional work, in positions of responsibility, for another year. The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed course of study for an amount of time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at the University, his course of study must be approved in advance by the professor of civil engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented, together with a detailed account of his professional work, one month, at least, before the date of the annual Commencement at which he expects to receive the degree.

The conditions on which the degrees of Mechanical Engineer, and Electrical Engineer, as second degrees, are conferred upon Bachelors of Science of this University who have taken the degree for a course in mechanical engineering, or in electrical engineering, are analogous in character and in amount to those given above for the degree of Civil Engineer.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars;* for all others *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*†

Fee for Special Entrance Examinations.—A fee of *five dollars* is required of all persons who take the examination for admission at a date not announced in the Calendar (see page 138).

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*The Matriculation Fee and the Annual Fee must be paid in advance; no portion of these fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year. The Auditing Board have authority, under certain conditions, to remit the fee for special entrance examinations.

† An annual fee of ten dollars is required of all graduates who are granted the privilege of pursuing studies for an advanced degree *in absentia.*

Diploma Fee.—For all alike, *ten dollars.*

Laboratory Courses.—The required laboratory courses cost approximately as follows: *Shop Practice.*—In the mechanical and electrical engineering courses, *thirty dollars. Physical Laboratory.*—A charge of *one dollar* is made for a course requiring one exercise a week during one semester, and at the same rate for the longer courses. *Mechanical Laboratory.*—The charge for each course is *five dollars. Chemical Laboratory.*—Students who take laboratory courses in chemistry are required to pay, for the materials and apparatus consumed by them. The average cost is about *ten dollars.*

The fee required for any course has to be paid before the work of the course is begun.

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is, for Michigan students, from $185 to $210; and for others, from $240 to $265, varying more or less according to the student's actual laboratory expenses.

For additional information in regard to expenses see pages 39 to 41.

Department of Medicine and Surgery.

A special Announcement giving further information in regard to this Department is published annually. For copies of this Announcement or for other information relating to the Department, address Dr. Victor C. Vaughan, Dean of the Department of Medicine and Surgery, Ann Arbor, Michigan.

THE Department of Medicine and Surgery, for which provision was made in the legislative act by which the University was organized in 1837, was opened for students in 1850. The college year was lengthened from six to nine months in 1877. The course was lengthened to three years in 1880 and to four years in 1890.

The college year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1899, to June 21, 1900). The lectures continue till near the middle of June. The examinations are then begun and concluded in time for the Commencement exercises.

REQUIREMENTS FOR ADMISSION.

Beginning with the year 1901 the requirements for admission to the Department of Medicine and Surgery will be materially increased. The requirements in force for 1899 and 1900 are as follows:

Every candidate for admission must be at least seventeen years of age, and must present to the Faculty satisfactory evidence of a good moral character.

Women are admitted, as to all other departments of the University, on the same conditions as men.

All persons applying for admission are required to have a special form of recommendation properly filled out and signed. Blank forms for this purpose will be furnished on application to the Dean of the Department.

No student is permitted to enter with more than two conditions in the subjects required for admission, and all entrance conditions must be removed before the beginning of the student's second college year.

Subjects of Examination in 1899 and 1900.

The subjects on which applicants for admission in 1899 and 1900 will be examined are as follows:

English.—Each applicant will be asked to write an essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and paragraphing.

Mathematics.—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures.

Algebra.—Fundamental Rules, Fractions, Equations of the First Degree containing two or more unknown quantities.

Geometry.—Plane Geometry.

Physics.—An amount represented by Carhart and Chute's Elements of Physics.

General Biology, or Botany and Zoology.*—Sedgwick and Wilson's General Biology, or Spalding's Introduction to Botany and Kingsley's Comparative Zoology.

History.—Myers's General History, or an equivalent; and Higginson's or Johnston's History of the United States.

Latin.—Four books of Caesar.

The examination for admission will be held Thursday, Friday, and Saturday, September 21 to 23, 1899. Applicants are required to present themselves at this time as they are expected to be in attendance on the first day of the term, when the regular course of instruction begins. All certificates and recommendations are to be presented to the committee on entrance requirements on the first day set for the examination.

Before admission to examination every applicant is required to present to the Secretary of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee. It will, therefore, be necessary for him to apply first to the Secretary of the University at his office in University Hall, register his name as a student in the Department of Medicine and Surgery, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

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*Physiology is accepted as a substitute for Zoology.

Exemptions from Examination.—Certificates of matriculation in the Department of Literature, Science, and the Arts of this University (page 42), or in other literary colleges of good standing, and certificates of graduation in the *classical* or *Latin* courses of approved high schools,* and of other high schools and academies of equal standing, when accompanied by a recommendation filled in and signed by the principal of the high school or other institution which he has attended, will be accepted as evidence of proficiency *in such subjects of the above list of requirements as are covered by the recommendation*, and will exempt the student from examination in those subjects only.

Subjects of Examination in 1901 and thereafter.

The subjects on which applicants for admission in 1901 and thereafter will be examined are as follows:

English, Arithmetic, Algebra, Geometry, Physics, Latin.—In each, the same as described above for the year 1899.

Trigonometry.—Plane Trigonometry.

General Biology.—Each applicant will be required to have a knowledge of typical species of plants and animals with reference to structure, function, development, and relationship.

Chemistry.—General Inorganic Chemistry and Qualitative Analysis, as given in Freer's Text-book of General Chemistry and in Prescott and Johnson's Qualitative Analysis.

French or German.—The grammar and easy reading in *one* of these languages.

ADMISSION TO ADVANCED STANDING.

In order to be admitted to advanced standing, a student must have completed not only the didactic courses, *but the laboratory courses also*, already taken by the class to which he seeks admission. As a rule, the only laboratory courses which students applying for advanced standing have completed, are those in chemistry. When, in the judgment of the professor in charge, such a course is equivalent to that given in this Department, he may give the student credit for the work done, and thus avoid repetition. This, however, does not enable the student to finish the course earlier; it merely gives a few weeks of time which he may profitably spend on some advanced or optional course.

No credit can be given for lecture courses taken in schools unprepared to give the proper laboratory teaching. This applies to the clinical branches as well as to the scientific. For instance, lectures on surgery, even when accompanied by clinical demonstrations, cannot be accepted in lieu of the course given in this Department in the third year, which provides for operations by the student on animals.

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*The approved schools comprise all those accepted by the Faculty of the Department of Literature, Science, and the Arts. For a list of these see page 54.

COURSE OF INSTRUCTION.

The Course of Instruction covers four college years of nine months each. The first two years are devoted to the more strictly scientific work which serves as a basis for the technical and clinical studies which follow. The forenoons are given to lectures and recitations, three each day; the afternoons to laboratory drill during the first two years, and to the study of methods of diagnosis and means of treatment during the third and fourth years. Four or five hours a day are required in the laboratory and the hospital.

*SCHEDULE OF STUDIES.**

FIRST YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

Subjects.	*Time Required.*
Osteology,	2 hours a week.
General Anatomy,	2 hours a week.
General Chemistry,	5 hours a week.
Qualitative Analysis,	2 hours a week.
Bacteriology,	4 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

Subjects.	*Time Required.*
General Anatomy,	2 hours a week.
Physics,	4 hours a week.
Organic Chemistry,	5 hours a week.
Histology,	4 hours a week.

LABORATORY WORK IN FIRST YEAR.†

Subjects.	*Time Required.*
Anatomy,	Every day for 12 weeks.
Chemistry,	Every day for 12 weeks.
Bacteriology,	Every day for 12 weeks.

SECOND YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

Subjects.	*Time Required.*
Anatomy of Nervous System,	3 hours a week.
Physiology,	5 hours a week.
Hygiene,	3 hours a week.
Embryology,	4 hours a week.

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* Optional advanced courses are offered in all the courses in the schedule.

† Four to five hours constitute a day's work in the laboratory.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

Subjects.	*Time Required.*
Regional Anatomy,	1 hour a week.
Surgical Anatomy,	1 hour a week.
Physiology,	5 hours a week.
Physiological Chemistry,	3 hours a week.
Hygiene,	2 hours a week.
General Pathology,	2 hours a week.

LABORATORY WORK IN SECOND YEAR.

Subjects.	*Time Required.*
Anatomy,	Every day for 12 weeks.
Physiological Chemistry,	Every day for 12 weeks.
Histology,	Every day for 6 weeks.
Electrotherapeutics,	Every day for 6 weeks.
Physiology,	Four days a week for 6 weeks.

THIRD YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

Subjects.	*Time Required.*
Theory and Practice,	4 hours a week.
General Surgery,	2 hours a week.
Materia Medica and Therapeutics,	5 hours a week.
General Pathology,	2 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

Subjects.	*Time Required.*
Theory and Practice,	4 hours a week.
General Surgery,	2 hours a week.
Obstetrics,	2 hours a week.
Materia Medica and Therapeutics,	5 hours a week.

LABORATORY AND DEMONSTRATION COURSES IN THIRD YEAR.

Subjects.	*Time Required.*
Practical Pathology,	Every day for 8 weeks.
Clinical Medicine,	Every day for 5 weeks.
Nervous Diseases,	Every day for 5 weeks.
Operative and Minor Surgery,	Every day for 5 weeks.
Obstetrics and Gynæcology,	Every day for 5 weeks.
Ophthalmology, Otology, and Laryngology,	Every day for 5 weeks.
Practical Pharmacology,	Four days a week for 6 weeks.

CLINICAL COURSES IN THIRD YEAR.

Subjects.	*Time Required.*
Internal Medicine,	2 hours a week.
Surgery,	2 hours a week.
Gynæcology,	2 hours a week.
Ophthalmology,	2 hours a week.
Nervous Diseases,	1 hour a week.

FOURTH YEAR.

LECTURES AND RECITATIONS IN FOURTH YEAR.

Subjects.	*Time Required.*
Theory and Practice,	2 hours a week.
Special Surgery,	3 hours a week.
Obstetrics and Gynæcology,	3 hours a week.
Diseases of the Nervous System,	2 hours a week.
Dermatology and Syphilology,	2 hours a week.
Ophthalmology, Otology, and Laryngology,	2 hours a week.
Medical Jurisprudence,	20 lectures.

CLINICAL COURSES IN FOURTH YEAR.

Subjects.	*Time Required.*
Internal Medicine,	4 hours a week.
Surgery,	2 afternoons a week.
Obstetrics and Gynæcology,	2 afternoons a week.
Dermatology and Syphilology,	2 hours a week.
Ophthalmology, Otology, and Laryngology,	2 afternoons a week.

BEDSIDE AND DISPENSARY INSTRUCTION.

Senior students are given charge of patients, and are required to make diagnoses, prescribe, dress wounds, and perform minor operations under the direction of the professor in charge. A lying-in-ward furnishes obstetrical cases, which are attended by the senior students in rotation.

SPECIAL LECTURES.

From time to time members of the Faculty give special lectures upon subjects included in their original researches. These lectures vary in number from three to six on each subject and are given at times when all students may attend them. Attendance is voluntary and no examinations are held. The special lectures announced to be given in 1898–99 are on the following subjects:

1. Blood.—Professor DOCK.
2. New Facts in Regard to the Mammalian Heart.—Professor CUSHNY.
3. Military Surgery.—Professor NANCREDE.
4. Yellow Fever.—Professor NOVY.

The non-resident lecturers give special courses which will be arranged so as to come at times when the students are best prepared to profit by them.

EXAMINATIONS.

Examinations (written, oral, or both written and oral) are held at the close of each course or semester. Students "*conditioned*" cannot apply for another examination in the same subject until the close of the next course or semester, except that a student conditioned at the close of the college year may ask for another examination in the first two weeks of

the following year. Students reported "*not passed*" are required to take the course over again before applying for re-examination. Candidates for graduation, who fail in an examination, are allowed a re-examination before the entire Faculty. No student is recommended for graduation until he has completed all his required work and has passed all his examinations. Further rules concerning examinations are given in the special Announcement of the Department.

INSTRUCTION FOR WOMEN.

The course of instruction for women is in all respects equal to that for men. Practical Anatomy is pursued by the two sexes in separate rooms, but in the lectures, in public clinics, in the several laboratories, and in various class exercises, it is found that both sexes may attend with propriety at the same time.

COMBINED COURSE IN THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS, AND IN THE DEPARTMENT OF MEDICINE AND SURGERY.

All the subjects of the first two years of the preceding schedule (with the exception of electrotherapeutics and the courses in regional and surgical anatomy) are taught in the elective courses open to students in the Department of Literature, Science, and the Arts. Students in that department who intend to study medicine after taking the bachelor's degree, may shorten their total period of residence at the University by from a year to a year and a half or two years, if they pursue, as literary students, courses that cover the subjects required in the first two years of the medical curriculum. The precise amount of time gained will depend upon the amount of required medical work the student completes.

For a fuller description of the combined course see pages 110 to 113.

REQUIREMENTS FOR GRADUATION.

To be admitted to the degree of Doctor of Medicine, a student must be twenty-one years of age and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have been engaged in the study of medicine for the period of four years. If admitted to advanced standing, he must have attended four full courses of medical lectures, *the last two of which must be in this Department*, and have passed the required examinations.

Graduates of other reputable medical colleges, wishing to take a degree in this school must regularly matriculate and do all work required in this school and not required in the school that has granted the diploma already held. The shortest term of residence for such graduates is one year. Graduates of other reputable medical schools may, however, without becoming candidates for a degree, pursue any of the graduate courses on the conditions stated below.

GRADUATE COURSES.

Graduates of this Department of the University, or of other medical schools, are admitted to any one or more of the regular courses of the curriculum on giving evidence of their ability to profit by the instruction given. Advanced courses, beyond the regular curriculum, are also arranged in several of the subjects taught. Graduate students are required to pay for each course, of six weeks duration, the sum of ten dollars in addition to the ordinary laboratory expenses of the course, which vary with the character of the work.

The nature of the work arranged for graduate students in some of the branches of instruction is shown by the following descriptive outline:

Hygiene and Bacteriology.—(a) A course in advanced bacteriological study, such as a student who has already completed the required courses in bacteriology may elect. (b) A course arranged especially for health officers, and including the chemical and bacteriological examination of food, water, soil, and air.

Electrotherapeutics.—A course covering the subjects of diagnosis, electrolysis, the management of continuous-current and cautery batteries, and the use of induction coils and the static machine in their therapeutic applications.

Pathology.—A systematic course in pathological histology is open to graduates, as are also special courses in the pathological histology of organs, tumors, blood, etc. Those wishing to take the latter courses must have had the necessary preliminary training.

Physiology.—(a) A course in physiological demonstrations; especially those intended to illustrate class lectures. The course is designed for those who teach physiology, but have not had opportunity of learning the methods of preparing physiological experiments and vivisections. (b) For those who have sufficient training in laboratory methods, the apparatus and facilities of the laboratory are offered for the investigation of special problems.

Chemistry.—Graduates may select work in any of the courses provided in the several departments of the University. The courses in analytical and organic chemistry are described on pages 93 to 97. Special studies for individual purposes may be undertaken. Opportunity for research is given. The chemical library is supplied with the extensive repositories of science required in research, and with a wide range of literature of applied chemistry. In any part of the laboratory graduates may select any work they are prepared to pursue.

Anatomy.—(a) Graduates may pursue a special course in the anatomy of the nervous system, and facilities are offered for the investigation of special problems of anatomy, and for the thorough anatomical study of regions of special surgical importance. (b) A course in histological technique, including the methods of preparing, staining, and sectioning tissues. The course is designed for those desiring to fit themselves for histological research. (c) A course on the microscopic anatomy of the eye and ear and the central nervous system.

FACILITIES FOR INSTRUCTION.

There are ample collections of plates, photographs, models, specimens, preparations, apparatus, and instruments, for illustrating the different studies embraced in the course. Additions are made from time to time to these collections so that the members of the Faculty are able to adopt every new method of illustration, and to exhibit to the classes each year all important improvements in the way of instruments and apparatus that are employed in the practice of medicine and surgery, and to show their application.

The following paragraphs may serve to indicate the extent of some of these collections and the character of the work done in the several laboratories. For further information in regard to the University museums, laboratories, and libraries, see pages 23 to 33.

MUSEUM OF ANATOMY.

The museums of the late Professors FORD and SAGER, embracing several thousand specimens, the result of many years' labor in collecting and preparing materials intended to aid directly in teaching, are now the property of the university, and are used in the daily work of the class rooms. These museums contain a valuable collection of bones, illustrating healthy as well as diseased conditions, the various changes that occur from infancy to old age, and the processes of first and second dentition; dissections, general and partial, of the vascular, nervous, and muscular systems, both normal and abnormal; models of various portions of the body in wax, papier-maché, and plaster, illustrating morbid growths, skin diseases, etc.; preparations in the comparative embryology, neurology, and craniology of the vertebrata; in human embryology, in the anatomy and pathology of the diseases of women, etc. The collection of monstrosities, both single and double, of man and of the lower animals, is one of the largest in the United States.

ANATOMICAL LABORATORY.

The anatomical laboratory is admirably adapted for its purpose; it contains two well-lighted and well-ventilated dissecting rooms, one for men and one for women, and a third room for the study of the anatomy of the central nervous system. Suitable methods are employed for the preservation of anatomical material, and the student's work is facilitated by free access to osteological and other preparations.

The Anatomical Law of Michigan furnishes, without embarrassment, an ample supply of material for the purpose of practical anatomy. Every student is obliged to dissect thoroughly and carefully every part of the body during his course.

MUSEUM OF MATERIA MEDICA.

The museum of materia medica consists of a fairly complete collection of the crude substances used in medicine along with their principal preparations and active principles. The drugs are arranged in groups convenient for study, importance being laid not on their origin but on their action. The museum is also provided with several works of reference for the use of the students and with a number of graphic registrations of the action of drugs. It is open to students of the junior class at such hours as they arrange with the instructor.

CHEMICAL LABORATORY.

(See also page 30.)

The chemical laboratory provides thorough instruction and suitable appliances for the practical study of all branches of medical chemistry. In each of the two laboratory courses *required for graduation*, namely, qualitative chemistry (devoted to the study of chemical changes and incompatibilities), and physiological chemistry (applied to clinical uses and physiological study), students are taken in sections of limited number for daily drill in the class room to direct the daily practice in the laboratory. Before beginning laboratory work the student takes a preparatory course, with daily recitations, in chemical notation, and at the close of the work in each course is held to an examination.

ELECTROTHERAPEUTICAL LABORATORY.

The laboratory of electrotherapeutics is supplied with apparatus for illustrating all the various methods of generating electric currents, and for measuring currents, voltages, and resistances.

The students are furnished materials from which they construct batteries, induction coils, cautery knives, electrodes, and other appliances, and, with these, experiments in electrophysics, electrophysiology, and electrotherapeutics are conducted.

It is the aim in this laboratory instruction to make the student practically familiar with the faults and the essential requirements of all forms of electrical apparatus made use of for therapeutical purposes.

PHYSIOLOGICAL LABORATORY.

The apartments provided for the physiological laboratory offer excellent facilities for practical work, whether of class instruction or of original investigation. A large and well-lighted room is appropriated chiefly to the use of undergraduate students, who perform under the direction of instructors most of the fundamental physiological experiments. The subjects commonly embraced in the practical course relate to the physiology of the special senses, muscular contraction, nerve reflex action, circulation, respiration, and digestion. A smaller room is devoted to advanced work and original investigation. The laboratory has a good supply of apparatus, tools, etc., and is open daily for physiological experiment and research.

HISTOLOGICAL AND EMBRYOLOGICAL LABORATORY.

This laboratory is well supplied with microscopes, microscopical accessories, microtomes, imbedding apparatus, and other instruments used in histological and embryological work. During his term of instruction in the laboratory each student is furnished with microscopical reagents, a microscope, and a table for his own use, so that the practical work is carried out by each individual for himself. In the elementary course in histology an effort is made to teach the student the use of the microscope, the methods of teasing, the methods of mounting paraffine and celloidine sections, and the use of a number of the more commonly employed stains.

During his stay in the laboratory the student makes about one hundred and fifty preparations, and he is required to sketch them all as he makes them. These preparations are so arranged as to furnish him with specimens of typical cells and cell division, of all the elementary tissues, of the various glands and organs of the body, of the epidermis, of the central and peripheral nervous system, and of the sensory end-organs and the special senses.

In the course on microscopical technique, which is open only to those who have completed the elementary work, the student is instructed in the various methods of hardening, staining, imbedding, section-cutting, and injecting, the special methods of staining and counting red and white, blood cells, and the use of the microscope in forensic medicine.

An optional laboratory course in the embryology of the salamander, the chick, and mammalia is offered, which is open to students who have completed the elementary work in histology and a course in microscopical technique, and have attended lectures in embryology. There is also an optional laboratory course in the microscopic anatomy of the brain and the special senses.

PHARMACOLOGICAL LABORATORY.

The pharmacological laboratory is situated in the medical building and consists of two chief rooms, one of which is used for chemical, the other for experimental, pharmacology. Each laboratory is supplied with apparatus and materials for original work in either branch of research, and any student or graduate receives every encouragement in the prosecution of such work. Among the apparatus recently introduced into this laboratory may be mentioned Runne's kymographion with endless paper, two sets of revolving drums, artificial respiration apparatus driven by an electric motor, time markers and signals (electric and clock-work), batteries and secondary coils, centrifugal and "shaker" apparatus, balances, combustion furnaces, etc.

PATHOLOGICAL LABORATORY.

This laboratory is supplied with microscopes, microtomes, paraffin ovens, and the other apparatus necessary in the study of pathologic histology. Each student is furnished with a locker containing a microscope with high and low powers, and is assigned to a table containing the necessary stains and reagents for practical work. These are furnished by the laboratory.

The supply of material for the study of pathologic histology is the result of collections made in the pathological institutes of Vienna and Freiburg, and embraces almost every known pathologic condition. This collection gives ample material for the regular courses, and, in addition, offers special opportunities to the advanced student who may wish to pursue studies in certain lines of special pathology, as the pathology of the nervous system, genito-urinary tract, skin, etc. It is especially to the graduate student that this collection presents a fine opportunity for special work, as he is thereby offered practically the same advantages as those given in the principal laboratories abroad.

In addition an abundant supply of fresh material comes from the clinics of the University Hospital, and this is utilized to the fullest extent in the teaching both of gross and of microscopical pathology. The laboratory is fitted with a Bausch and Lomb carbonic acid freezing microtome for use in the making of quick diagnoses and in the preparation of fresh material for class study. By the use of this instrument stained sections may be had in three minutes after the removal of the tissues from the body, and the student is thus enabled to make a study of morbid changes impossible in hardened material.

The required course in pathologic histology lasts eight weeks, five afternoons a week being required, though Saturday afternoon is also usually taken for this work. The student studies the histology of morbid processes in fresh and in hardened material, in stained and in unstained sections, and applies chemical tests, etc. He is further required to demonstrate his knowledge by drawings and written descriptions of the specimens. The course includes the study of the most important alterations in the blood and circulatory system, changes in nutrition, tumors, the infectious diseases, and the more important diseases of special organs. About one hundred and seventy-five specimens, stained and ready for mounting, are given to the class as unknowns for identification and demonstration. These become the property of the student. The study of inflammation is also made in the living animal.

Written reports upon each of these specimens are required, and, in addition, fifty drawings. Small prizes are offered yearly for the best two sets of drawings; for this year fifteen dollars and five dollars.

A practical working knowledge of pathologic technique is also required of each student; and he is instructed in the methods of examination of fresh tissues; in the various processes of hardening, embedding, cutting, etc.; and in the use of the most important stains.

A special course in technique and in the diagnosis of malignancy is offered to junior students who have finished the regular course. Reagents and apparatus are furnished by the laboratory, and separate rooms are set apart for the use of the advanced student. The abundance of valuable material available for this course offers unusual opportunities to the physician who may wish to take special work. To such and to those who wish to work up material of their own every facility is offered. The members of this advanced class form a Journal Club which meets weekly. At these meetings reports are made in detail on material given the student for examination, papers are read, specimens exhibited, and general discussions held.

An advanced laboratory class for senior students is held on Saturday mornings. This course is limited to the special study of the blood, genito-urinary tract, eye, etc. An opportunity is given each student for work in any special line he may choose for original investigation.

The laboratory contains a set of pathological models and a nucleus of a pathological museum which already contains many rare and valuable specimens. These are utilized for teaching purposes as far as possible.

Autopsies.—A senior course in post-mortem work is given one hour weekly throughout the year. The most important methods of making sections are demonstrated upon the cadaver, and are repeated until the student is thoroughly familiar with them. Especial attention is paid to the gross appearance of both normal and pathologic conditions of the body.

The clinical autopsies are held before the members of the senior and junior classes, and the findings thoroughly demonstrated. No regular time can be set for this work, but in the event of a post-mortem the students are excused from other work in hand, so that they may be present at the section. The number of these autopsies has greatly increased within the last few years, and the cases shown have been most instructive ones.

HYGIENIC LABORATORY.

The hygienic laboratory has a large room devoted to bacteriological work, containing all of the improved apparatus employed in the best laboratories of France and Germany. The courses in bacteriology extends through three months and requires four hours daily in the laboratory for this time. All the known pathogenic and the most important non-pathogenic germs are studied. The microscopes used are those of Zeiss and Leitz. All animals needed for experimentation are supplied by the laboratory. There are also courses in the chemical and bacteriological examination of drinking water, and in the study of food adulterations. Besides these, advanced students who wish to do practical work in the study of ptomaines and leucomaines are accommodated.

The objects had in view in the establishment of this laboratory were as follows: (1) original research as to the causation of disease; (2) sanitary examination of food and drink; (3) instruction to students.

Besides the large bacteriological room, there are rooms fitted especially for gas analysis and water analysis, and private rooms for original research. There are also a cold chamber, a disinfecting chamber, and an animal room.

MUSEUM OF NATURAL HISTORY AND LIBRARY.

Students in medicine have access to the botanical, zoological, and geological cabinets of the University, estimated to contain 255,000 specimens. The Medical Library contains 8,630 volumes, and 1,499 unbound pamphlets. The General Library, containing 98,222 volumes, is also open to all students. A complete catalogue, arranged both by authors and by subjects, is accessible to readers. The leading medical periodicals of this country and of Europe are taken and kept on file.

THE UNIVERSITY HOSPITAL.

The University Hospital has sufficient capacity to accommodate a large number of patients, is thoroughly equipped, and is in the immediate charge of a competent house physician and surgeon and an experienced matron. It is under tne direction of the Faculty, who attend regularly upon the patients (each upon such cases as may come within his special department) and give clinical instruction in the wards to senior students. In connection with the hospital there is a spacious clinical amphitheatre where clinics are regularly held every day during the college year, for medical, surgical, gynæcological, ophthalmological, neurological, dermatological, and venereal cases, at which time examinations are made, prescriptions given, and surgical operations performed in the presence of the class.

It is the aim of the Faculty to make instruction in clinical medicine systematic and thorough, and this they are enabled to do by an abundance of interesting cases which present themselves. The number of patients treated and operated upon in the hospital each year is more than 1,500. Each student, therefore, may see, during his two clinical years, more than 3,000 patients, many of whom present more than one abnormality. Patients are utilized for teaching purposes more thoroughly than can be done in many hospitals. The University Hospital exists for the purpose of affording clinical material and every patient is utilized, but this does not detract in any manner from the benefit which the patient may receive. Students are required to take the history and keep a record of patients, and, under proper supervision, are afforded an opportunity of personally examining the patients. Senior students are required to dress wounds and give other detailed attention to patients assigned them. Stress is laid upon the value of ward and bedside instruction. A small room in the hospital is furnished with laboratory appliances and here the student is required to make practical application of the knowledge which he has previously acquired in the scientific laboratories.

A lying-in ward is established in which senior students are given an opportunity to attend cases of labor, and become familiar with the duties of the lying-in room, under the immediate direction of the professor of obstetrics and his assistant.

For the treatment of diseases of the nervous system the hospital is furnished with apparatus for generating all kinds of electric currents. Attendants especially skilled in the application of electricity and massage are put in charge of such cases.

A large portion of the cases admitted to the hospital are from a distance and are of more than common interest, including many cases of chronic diseases of the lungs, the heart, and the nervous system.

Under the present organization, patients are much better accommodated, and clinical instruction is rendered more systematic and efficient than was formally possible. The expenses to patients are only for their board, for unusual appliances or special nursing, and for medicines, the services of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to Mr. Harry W. Clark, Superintendent of the University Hospital, Ann Arbor, Mich., to ascertain if there is room for their accommodation, and to obtain a circular giving more fully the rules governing admission. No contagious diseases are admitted.

Training School for Nurses.—In connection with the Hospital there has been established a training school for nurses under the charge of a competent and experienced matron. The term of study and service extends through two years, at the expiration of which time those who have proved themselves worthy are granted a certificate of graduation. For further information in regard to this school, application may be made to the Superintendent of the Hospital.

TEXT-BOOK AND BOOKS OF REFERENCE.

A list of text-books and books of reference recommended is given in the special Announcement of the Department. The student who begins a course of reading without an instructor, is recommended to devote the most of his time for the first year to the elementary branches, anatomy, physiology, and general and medical chemistry.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Diploma Fee.—For all alike, *ten dollars.*

Laboratory and Demonstration Courses.—The required laboratory and demonstration courses cost approximately as follows:

Anatomy	$20 00
Chemistry	15 00
Bacteriology	15 00
Physiological Chemistry	15 00
Histology	7 00
Electrotherapeutics	8 00
Pathology	10 00
Operative Surgery	10 00

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*The Matriculation Fee and the Annual Fee must be paid in advance, and no student can select his seat until after such payment. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Demonstration Course in Medicine	$10 00
" " " Obstetrics	10 00
" " " Nervous Diseases	10 00
" " " Laryngology and Ophthalmology	10 00

A deposit of the amount indicated for each of the above is required before the work of the course is begun.

Graduate Courses.—A fee of *ten dollars* is charged to graduate students for each course taken, in addition to the ordinary laboratory expenses of the course.

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is, for Michigan students, about $300.00; and for all others, about $355.00, varying a little with the student's actual laboratory expenses.

For additional information in regard to expenses see pages 39 to 41.

Department of Law.

A special Announcement giving further information in regard to this Department is published annually. For copies of this Announcement, or for other information relating to the Department, address Professor H. B. Hutchins, Dean of the Department of Law, Ann Arbor, Michigan.

THE Department of Law was opened in 1859. Its growth and influence have been marked. From the first it has been the constant endeavor of the Faculty to furnish facilities for legal training equal to any attainable elsewhere in the country. And no effort will be spared to make the Department in the future deserving of continued and increasing prosperity. The Faculty is composed of both resident and non-resident members. The resident members, thirteen in number, devote themselves regularly and continuously to the work of instruction. The non-resident members, two in number, are engaged in practice, but meet their classes each week on designated days. In addition to the instruction by the regular staff, which covers all the fundamental and ordinary branches of the law, provision is made for several courses by specialists upon such subjects as International Law, Comparative Constitutional Law, Constitutional History, Admiralty Law, Medical Jurisprudence, Injunctions and Receivers, Insurance, Mining Law, Patent Law, Neurology, Electrology, Railway Injuries, and Copyright Law. There are eleven special lecturers, and each of the special courses consists of from six to fifteen lectures.

The department is housed in a new and spacious building that is devoted exclusively to its use. It is ample in its accommodations and admirably adapted for law-school work.

The academic year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1899, to June 21, 1900).

DIRECTIONS TO APPLICANTS FOR ADMISSION.

Before applying for admission to the Department, or to the entrance examination, the applicant is required to present to the Dean of the Department, at his office in the Department Building, the Treasurer's receipt for payment of the matriculation fee and the annual fee. It is essential, therefore, that an applicant for admission should apply first to the Secretary of the University at his office in University Hall, register his name as a student in the Department of Law, and pay his fees to the Treasurer. He is then entitled to apply for admission, and in case of rejection, the money paid preliminary to the examination will be refunded by the Treasurer.

REQUIREMENTS FOR ADMISSION.

[For admission to advanced standing, see page 188.]
[For admission of special students, see page 189.]
[For admission to the graduate class, see page 189.]

The requirements for admission to the Department of Law have recently been raised, but the additional requirements do not go into effect until the opening of the University year in 1900. The requirements in force for the examinations to be held in 1899 are given below.

REQUIREMENTS FOR ADMISSION IN 1899.

Applicants for admission to the first year class must be at least eighteen years of age; to the second year class, nineteen; and to the third year class, twenty. Applicants for admission to the graduate class must be at least twenty years of age. Special students must be at least nineteen years of age.

Graduates of universities or colleges, matriculates of universities or colleges, and students who have completed an academical or high school course approved by the Faculty, are admitted to the Department without examination as to preliminary requirements, and may become candidates for a degree. In order to be entitled to this privilege, however, the applicant should present to the Dean of the Department evidence that he comes within some one of the classes named, which should be in the form of a diploma or certificate, or a certified copy thereof. All other applicants, if candidates for a degree, must pass satisfactory examinations in the following subjects:

English Language, Composition, and Rhetoric.—The applicant will be required to write an essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and paragraphing. The topics for the essays, which will be such as the applicant is likely to be familiar with and from which he may make a selection, will be given at the time of the examination.

English Literature.—Stopford A. Brooke's Primer, or any other manual, may be used for an outline of the subject.

Mathematics.—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures.

Algebra.—To Quadratic Equations.

Plane Geometry.—As given in Olney's New Elementary Geometry, Beman and Smith's Plane and Solid Geometry, or an equivalent in other authors.

History.—Myers's General History, Johnston's History of the United States or McLaughlin's History of the American Nation, and Ransome's History of England, or equivalents.

Civil Government.—Fiske's Civil Government, Hinsdale's American Government (Parts I and II, especially the large print), or an equivalent.

It should be said that, while a competent degree of knowledge is required, the examination is not technical; and, further, that applicants may be admitted to the Department conditionally, notwithstanding that they may be deficient in some subjects, in case such deficiencies are not so considerable as, in the judgment of the Faculty, to disqualify them for the performance of the work of the class to which they seek admission. All such deficiencies, however, must be made up before the end of the year, unless an extension of time is granted by the Faculty.

REQUIREMENTS FOR ADMISSION IN 1900.

The conditions respecting age of applicants will remain as stated above for the year 1899. The same classes of students as in 1899 will also then be exempt from examination.

In September, 1900, and thereafter until further notice, all applicants, *if candidates for a degree*, except those who are exempt as above explained, will be examined in some one of the four groups of requirements for admission to the Department of Literature, Science, and the Arts, the applicant having the privilege of selecting the group upon which he will be examined. These groups are described on pages 43 to 49.

ADMISSION TO ADVANCED STANDING.

Applicants for admission to the second year class must be at least nineteen years of age, and to the third year class, twenty.

In September, 1899, the following classes of persons, if otherwise qualified, will be admitted to advanced standing without examination upon their previous legal study:

1. To the second year class:—*a.* Attorneys-at-law in good and regular standing from any state in which an examination for admission is required. *b.* Persons who have satisfactorily completed one year's work in another law school of approved standing, and who bring proper certificates thereof.

2. To the third year class:—*a.* Persons who have received, in due course, the degree of Bachelor of Laws from an approved law school, maintaining an undergraduate course of not less than two years of nine months each. *b.* Persons who have satisfactorily completed two years' work in any approved law school maintaining an undergraduate course of three years of nine months each, and who bring the proper certificates thereof. *c.* Persons who, since January 1, 1898, have creditably passed the examination for admission to the bar given by the State Board of Law Examiners of Michigan, and who furnish proper certificates thereof.

All other applicants for advanced standing in the undergraduate course will be received only upon examination. Before he can enter the examination, the applicant must, unless exempt, pass the required preliminary examination for admission to the Department. He must, also, if he seeks admission to the second year class, show that he has studied law at least fifteen months, and if to the third year class, at least two years and a half, under some reputable practitioner or instructor. The evidence that he has complied with these requirements should be in the form of an affidavit from the practitioner or instructor with whom he has studied, showing with particularity the time spent and the course of study pursued, and should be presented to the Dean of the Department. The applicant must then pass examinations upon the subjects in the course that have been taken by the class to which he seeks to enter, or their equivalent. Under this regulation, he will be allowed to select the subjects for examination, but they must be the equivalent of those that have been taken by the class. He will receive credit for the subjects passed, and the examination will be final as to such subjects.

Candidates for advanced standing must make their application therefor at the time of entering the Department, and no application for further advancement will be entertained unless made within four weeks after the applicant's admission to the Department.

ADMISSION TO THE GRADUATE CLASS.

Applicants for admission to the graduate class must be at least twenty years of age.

Until further notice, the graduate course will be open to those who have received the degree of Bachelor of Laws from an approved law school, maintaining an undergraduate course of not less than three years of nine months each.

ADMISSION OF SPECIAL STUDENTS.

Persons who have been reading law for a considerable period before making application for admission to the Department, but whose reading, or preliminary preparation, has not been sufficiently extensive to bring them within the rules for admission to any class, are allowed to become special students, with the privilege of pursuing a selected course of study, but without the privilege of being enrolled as candidates for a degree. They are permitted, under the guidance of the Faculty, to select subjects from the different courses. They must, however, satisfy the professors giving instruction in the subjects selected, that they are qualified to pursue the work with profit to themselves.

A like privilege is extended to persons who have not read law before applying for admission, and whose preliminary preparation is not such as to entitle them to enter as candidates for a degree.

TIME OF EXAMINATION.

The examination for admission will be held on Friday, Saturday, and Monday, September 22, 23, and 25, 1899.

COURSE OF INSTRUCTION.

The course of instruction for undergraduates is a graded course, extending through three academic years of nine months each. The subjects upon which instruction is given, the time devoted to each subject, and the method used, are described below. A schedule showing the hours when different exercises are held, [illegible] and distributed at the opening of each semester.

FIR[illegible]

Elementary Law. Two h[illegible] [illegible] Text-book work accompanied b[illegible] [illegible] two sections. Professor W[illegible]

Elementary Real Property. Two hours a week for the second semester. Text-book work accompanied by oral exposition. Class divided into two sections. Professor HUTCHINS.

Contracts and Quasi-Contracts. Two hours a week for the first semester and three for the second. Text-book and cases. Class divided into two sections. Professor KNOWLTON.

Criminal Law and Procedure. Two hours a week for the year. *First Semester:* Lectures on Criminal Law. Professor KNOWLTON. *Second Semester:* Text-Book on Criminal Pleading and Procedure. Class divided into two sections. Professor E. F. JOHNSON.

Torts. Two hours a week for the year. *First Semester:* Text-book and cases. Class divided into two sections. Professor WILGUS. *Second Semester:* Lectures. Professor THOMPSON.

Domestic Relations. Two hours a week for the second semester. Lectures. Professor MCALVAY.

Husband and Wife. Two hours a week for the first semester. Lectures. Professor KIRCHNER.

Personal Property. Two hours a week for the first semester. Text-book. Professor LANE.

Agency. Two hours a week for the second semester. Lectures and cases. Professor MECHEM.

SECOND YEAR.

Partnership. Two hours a week for the first semester. Lectures and cases. Professor MECHEM.

Bills of Exchange and Promissory Notes. Two hours a week for the first semester. Text-book and cases. Class divided into two sections. Professor E. F. JOHNSON.

Bailments and Carriers. Two hours a week for the first semester. Lectures. Professor LANE.

Civil Pleading and Procedure at Common Law. Two hours a week for the first semester. Lectures. Professor BOGLE.

Code Pleading. Two hours a week for the second semester. Text-book. Class divided into two sections. Professor E. F. JOHNSON.

Real Property,—Including Fixtures, Easements, and Landlord and Tenant. Two hours a week for the year. Lectures. Professor THOMPSON.

Equity Jurisprudence. Two hours a week for the first semester. Text-book, lectures, and cases. Professors HUTCHINS and MCALVAY.

Equity Pleading and Procedure. Two hours a week for the second semester. Lectures. Professor THOMPSON.

Corporations. Three hours a week for the second semester. Text-book and cases. Class divided into two sections. Professor WILGUS.

Evidence. Three hours a week for the second semester. Text-book. Professor LANE.

Damages. Two hours a week for the second semester. Lectures and cases. Professor MECHEM.

Law and Practice of the United States Courts. One hour a week for the first semester. Lectures. Professor LANE.

THIRD YEAR.

Constitutional Law. Two hours a week for the first semester. Text-book and cases. Professor MECHEM.

Public Corporations. Two hours a week for the second semester. Text-book. Professor KNOWLTON.

Extraordinary Legal Remedies. Two hours a week for the second semester. Text-book. Class divided into two sections. Professor E. F. JOHNSON.

Equity Jurisprudence. Two hours a week for the year. Lectures and cases. Professor HUTCHINS.

Wills and Administration. Two hours a week for the second semester. Lectures and cases. Professor MCALVAY.

Private International Law. Two hours a week for the first semester. Lectures. Professor KIRCHNER.

Assignment for the Benefit of Creditors and Fraudulent Conveyances. One hour a week for the second semester. Lectures. Professor THOMPSON.

Suretyship and Mortgage. Two hours a week for the first semester. Lectures. Professor THOMPSON.

The Science of Jurisprudence. One hour a week for the second semester. Lectures or text-book. Professor MECHEM.

Conveyancing. Two hours a week for the year. Lectures and practical work. Professor BREWSTER.

Practice Court. One hour a week for the year. Class divided into groups of four. Professor BOGLE.

Public Officers. One hour a week for the first semester. Text-book. Professor MECHEM.

Taxation. One hour a week for the second semester. Text-book. Professor MECHEM.

Practical Instruction Concerning the Preparation, Trial, and Argument of Causes. Lectures. One hour a week for

Professor LANE.

In addition to the above, each member of t

elect and complete *three* of the following s

Admiralty Law. Lectures. Judge Sw

Medical Jurisprudence. Text-book and lectures. Professor E. F. JOHNSON.

Insurance. Lectures. Dr. BIGELOW.

Receivers. Lectures. Mr. ———.

Mining Law. Lectures. Mr. CLAYBERG.

Patent Law. Lectures. Mr. WALKER.

Copyright Law and Trademarks. Lectures. Mr, REED.

Railway Law. Lectures. Professor KNOWLTON.

Neurology, Electrology, and Railway Injuries. Lectures. Professor HERDMAN.

RECITATIONS AND EXAMINATIONS.

For all text-book work, each class is divided into at least two sections. Whenever a subject is taught by lecture, the professor giving the instruction holds frequent, and usually daily, examinations upon ground covered by previous lectures. Additional quiz work upon the lectures is also given by the instructors. For this purpose the classes are divided into several sections, and the students are required to recite upon the lectures after the manner adopted in text-book instruction. Each section meets an instructor weekly for at least two exercises of one hour each. The size of the sections is such that each student can be examined at every exercise.

At the end of each semester one week is set apart for the thorough examination of all students upon the work of the semester. The examinations are in writing, and are final as to the work of the semester.

THE PRACTICE COURT.

It has been an objection frequently urged against the completeness of the training given in law schools that the student acquires no knowledge of actual practice. This objection has been largely removed by the introduction of the Practice Court recently established in this Department. The Practice Court is a part of the Department and is presided over by the professor of practice, while other members of the Faculty cooperate in conducting it. Its work is divided into three parts, that of the law term, that of the jury term, and that of appellate jurisdiction. The court is provided with a full corps of officers including the member of the Faculty who may sit from time to time as presiding judge, the full bench of judges sitting as a Supreme Court, a clerk, sheriff, and the necessary deputies. Ample and commodious rooms have been provided for the use of the court, including a large court room fitted up with all of the furniture and fittings necessary for the trial of jury cases, jury rooms, and clerk's office. The latter is provided with all the books and records used in actual practice and a full supply of the blanks in common use in the several states.

The purpose of the court is to afford to the student practical instruction in pleading and practice both at law and in equity, under the common law system and the "code" or "reformed" procedure, and actual experience in the commencement and trial of cases through all their stages. In commencing the actions, the students assigned to the case are permitted to select the state in which the action shall be supposed to be brought, thus enabling the student to acquire the practice as prevailing in his own state. All questions of practice, pleading, and procedure are governed by the law of the state in which the action is so laid, but questions of substantive law are determined according to the weight of authority.

Two classes of cases are presented:

First. Cases arising upon given statements of fact, prepared and assigned by the Faculty, upon which process is to be issued, pleadings framed, and the case conducted to an issue, when it is argued and disposed of as a question of law upon the facts admitted. This class of cases affords the student practical experience in the commencement of suits, and the preparation of pleadings and the argument of the questions of law arising upon the facts. The practice and pleadings are under the common law or the code procedure as the students may elect. There are two public hearings in this course: *a.* The questions arising upon the pleadings, are urged and disposed of at a regular session of the court presided over by the professor of practice. *b.* After the pleadings have been approved, the case is set down for a separate hearing upon the questions of law. This argument is heard either by the professor of practice or that member of the Faculty who has charge of the instruction of the subject involved. When the issues so arising have been satisfactorily disposed of, the student is given credit for the first course.

Second. Actual controversies are arranged and assigned for trial as issues of fact. The course includes the entire conduct of an actual case from its beginning to a final judgment in the Supreme Court. This involves the issue of proper process, the preparation and filing of appropriate pleadings, the subpœnaing of the witnesses, the impanelling of a jury, the examination and cross-examination of witnesses, the arguments to the court and jury, and all the other incidents of a contested trial.

For the purpose of this work the class is divided into sections, and the work of attorneys, witnesses, jurors and the like is performed by the students. A member of the Faculty presides at these trials which are conducted with all the dignity and decorum of actual practice. Upon the satisfactory completion of the course, credit is given for it.

Every member of the senior class who is a candidate for a degree will be expected to take part in both courses, and to perform all the incidental duties which may be required of him. Satisfactory completion of both courses will be a condition precedent to a degree.

The Practice Court supersedes the Moot Courts formerly conducted in the Department.

CONVEYANCING.

In order further to extend the practical instruction given in this Department, a course in Conveyancing is provided, to which one professor devotes his entire time. It is the purpose of this course to give by textbooks and lectures full and systematic instruction in the substantive law of conveyancing, and also a thorough drill in the actual preparation of all of the more important forms of conveyances, including thereunder not only deeds, mortgages, wills, and assignments of various sorts, but also all such contracts, agreements, corporate and partnership articles, and other instruments, as the lawyer in actual practice is likely to be called upon to prepare. To accomplish this purpose, the class is furnished with statements of fact, with the requisition for the appropriate conveyance, and each student is required to prepare under the direction of the professor in charge of this course, the various forms of instruments in question, and to submit them to such professor for examination and criticism. If not in proper form they are required to be rewritten or corrected. Neatness, accuracy, and a lawyer-like method of expression are insisted upon. The correctness of the body of the instrument is not alone attended to, but the variations of form in the execution and acknowledgment where one of the parties is a corporation, a partnership, a married woman, and the like, receive attention.

The work in this course must be satisfactorily completed by each member of the third year class.

ELOCUTION AND ORATORY.

It is important that those who study law with a view of becoming advocates should give attention to the subject of public speaking. It is a mistake to suppose that excellence in speaking is simply a gift of nature, and not the result of patient and persistent labor and study.

Information regarding the University Oratorical Association, the Northern Oratorical League, the Central Debating League, the Testimonials, and the annual contests in oratory and debate, which afford opportunity for a practical application of the principles taught, may be found on pages 36 to 38.

The following courses, given by Professor TRUEBLOOD, are optional: but, when a student has elected a course, he is required to complete it. Failure to do so will affect his standing at graduation:

FIRST YEAR CLASS.

First Semester.

1. *Elocution.* Exercises in vocal culture, breathing, position, and gesture; pronunciation and emphasis; elements of quality and force of voice, with their application to choice passages from the orators. Two sections. Two hours a week.

Second Semester.

2. *Elocution.* Exercises in vocal culture, continued; principles of action; elements of pitch and time, and their application to representative selections. Two sections. Two hours a week.

SECOND YEAR CLASS.

First Semester.

3. *Study of Forensic Orators and Oratory.* Lectures on methods of public address and sources of power of the orator; study of representative orations. Two hours a week.

Second Semester.

4. *Oral Discussions.* Designed to develop readiness of extemporization. Practical application of the principles of formal logic. Leading questions of the day debated in class. Lectures on argumentation and persuasion. Preparation of briefs. Two hours a week.

THE GRADUATE COURSE.

In October, 1889, the Board of Regents established in the Law Department a Graduate Course, upon the completion of which the degree of Master of Laws is conferred. The requirements for admission to this course are given on page 189.

The following course of study is pursued by candidates for the degree of Master of Laws:

Public International Law. Theses are required on topics assigned. President ANGELL.

History of Treaties. President ANGELL.

The Railroad Problem. Professor ADAMS.

Comparative Constitutional Law. Lectures on the institutions of Germany, France, and other continental states, with a study of
the English Constitution. Professor HUDSON.

Advanced Course in Constitutional Law and Constitutio
Professor MCLAUGHLIN.

Roman Law. Assistant Professor DRAKE.

Students recite and are examined on the subjects enumerated above.

The members of the undergraduate classes are not allowed to attend the lectures given to the graduate students. Graduate students are, however, allowed to attend the lectures given to the undergraduate classes.

In addition to the foregoing subjects, each graduate student is required to elect at the opening of the university year *three* of the subjects hereinafter named, one of which he shall designate as his *major* subject, and the other two as his *minor* subjects. To the *major* subject the student must give his best energies, making his investigations therein thorough, comprehensive, and exhaustive. To the *minor* subjects, he will be expected to give all the attention which his time will permit. His work in the *minor* lines will be of a more general character, and, although it must be thorough as far as prosecuted, it will be less extended than that given to the *major* subject.

Each graduate student is under the special guidance of the professors in whose departments his subjects lie. From them he receives instructions as to the questions to be investigated, and to them he makes regular weekly reports. Upon the return of these reports, the work of the student is carefully examined and criticised, and such suggestions made as may be thought necessary. The scheme contemplates independent investigation by the student, along the lines chosen, under the direction and supervision of the Faculty.

All of the special courses given by the non-resident lecturers are open to graduate students and they are required to take such of them as they did not take as undergraduates.

Each graduate student is required to prepare a thesis, which must be scholarly and exhaustive in character, upon some topic connected with his *major* subject. The thesis is made a special feature of the graduate work.

The graduate course covers one year. At the end of each semester each student is examined both orally and in writing upon all work taken.

The following subjects are offered from which the student may select his *major* and *minor* subjects: Contracts; Torts; Mercantile Law; Public and Private Corporations; Railroad Law; Insurance Law; Private International Law; Real Property; Jurisdiction and Procedure in Equity; Domestic Relations; Taxation; Elections; Public Officers; Admiralty; Roman Law; American Constitutional History; American Constitutional Law; English Constitutional History; Comparative Jurisprudence; Political Science.

REQUIREMENTS FOR GRADUATION.

THESIS.

Each candidate for a degree is required to prepare and deposit with the Faculty a dissertation, not less than forty folios in length, upon some legal topic selected or approved by the Committee on Theses. The dissertation must be satisfactory in matter, form, and style; and the student presenting it must hold himself in readiness to be examined upon the subject. It must be printed on a typewriter or otherwise, and a copy left with the Department.

The theses of candidates for the degree of Bachelor of Laws must be presented before the beginning of the second semester of the last year of the course. The theses of graduate students must be submitted at least two months prior to Commencement.

THE DEGREE OF BACHELOR OF LAWS.

Students who have received the full course of instruction, performed all required exercises, and passed the regular examinations, are admitted to the degree of Bachelor of Laws. Students admitted to advanced standing are entitled to all the privileges of the class of which they become members.

THE DEGREE OF MASTER OF LAWS.

The degree of Master of Laws is conferred on any graduate of this Department, who pursues the study of Law in this University for one year after graduation, and who completes to the satisfaction of the Law Faculty such a course of study as may be required; and the privilege thus extended to graduates of this Department is also extended to the graduates of other law schools who are entitled under the foregoing rules to advanced standing as members of the graduate class.

CERTIFICATES OF ATTENDANCE.

When a person has been connected with the school for a period not entitling him to graduate, he may, on application to the Dean of the Department, receive an official certificate of attendance, which states the time of his attendance and the degree of his attainment.

LIBRARIES.

The Law Library contains the reports of every State in the Union, the reports of the Federal Courts, the English, Scotch, Irish, and Canadian reports, together with such collateral reports as the Law Journal Reports, the Jurist, the Law Times Reports, the Weekly Reporter, the Scottish Law Reporter, the Irish Jurist, the Irish Law Times, the English Ruling Cases, the National Reporter System, the American Decisions, the

American Reports, the American State Reports, and the Lawyers' Reports Annotated, as well as several series of cases upon particular branches, such as the American Probate Reports, the American Electrical Cases, the American and English Railroad Cases, the American and English Corporation Cases, etc. Of several of the more important series one or more duplicates are to be found in the Library. It also contains an extensive collection of treatises and text-books, both English and American, and copies of the statutes of the several States and of the United States. New reports, as they are issued, are added, as are new text-books and treatises of merit. The library is also well supplied with sets of selected and leading cases and of legal periodicals. The Journal of Jurisprudence (Edinburgh), the Law Quarterly Review (London), the American Law Review, the American Law Register, the Criminal Law Magazine, the Albany Law Journal, the Central Journal, the Juridical Review, the Green Bag, and others, are regularly taken and kept on file.

The library was enriched some years ago by the gift of the valuable law library of the Honorable Richard Fletcher, formerly one of the Justices of the Supreme Court of Massachusetts; and, during the past year, by the gift of the valuable law library of Honorable Samuel T. Douglass, for many years one of the leading lawyers of the State and formerly one of the Justices of the Supreme Court of Michigan.

The late Honorable Christian H. Buhl, of Detroit, bequeathed to the University for the Law Library the sum of ten thousand dollars. This gift, which has been used in the purchase of books has added materially to the value and efficiency of the large collection of reports and text-books presented to the library by Mr. Buhl a few years ago, and known as the Buhl Law Library. It has enabled the Department to provide for its students library facilities that are second to none in the country.

The library is open for consultation by students from 8 A. M. to 12 M., from 1:30 to 5:30 P. M., and from 7 to 10 P. M., during the academic year, except on Saturday afternoons and evenings. Students are not permitted to take the books from the library building, but during the hours named are allowed free access to them.

The General Library of the University (see page 23) is also open to use by students in the Department of Law.

WORK IN THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

CONSTITUTIONAL HISTORY AND POLITICAL SCIENCE.

It seems now to be conceded that the law should be studied in a law school, and that the law school should be connected with a university, where students can avail themselves of opportunities for the study of such other branches of learning as are of allied significance.

It is believed that students in the Department of Law may derive great benefit from the instruction given on kindred subjects in the Department of Literature, Science, and the Arts (page 42). Students who first obtain permission from the committee in charge of the combined work in the two departments (see below), are allowed to attend lectures delivered in that department free of charge. But the Law Faculty reserves the right to require such students to give up any or all studies they may be pursuing in the other department, whenever it appears that the pursuit of these studies is attended with an unsatisfactory performance of the duties required in the Department of Law. Among the subjects regarded as particularly suitable for law students the following may be named: Political and Constitutional History of England; Constitutional History and Constitutional Law of the United States; Comparative Constitutional Law; History of the Middle Ages; Elements of International Law; History of Treaties; the Social, Sanitary, and Economic Sciences. (Compare pages 78 to 88.)

COMBINED COURSE IN COLLEGIATE AND LAW STUDIES.

Under an arrangement entered into by the Faculties of the two departments it is now possible for a student to carry on, to some extent and under certain conditions, collegiate studies and studies in law at the same time. The work of students who receive permission to enter upon the combined course is under the supervision of a joint special committee, consisting for the current year of Professors McLaughlin, Hutchins, Mechem, and F. M. Taylor, and Assistant Professor Lloyd.

A fuller description of the combined course may be found on pages 113 and 114.

MASTER'S DEGREE IN ARTS, PHILOSOPHY, SCIENCE, OR LETTERS.

A graduate of the Department of Literature, Science, and the Arts, who is a candidate for a degree in the Department of Law, may, by permission of the Faculties of the two departments, be enrolled at the same time in the Graduate School, as a candidate for a Master's degree in Arts, Philosophy, Science, or Letters, (compare page 129). The privilege thus extended to graduates of this University is also extended to graduates of other colleges who satisfy the Faculty of the Department of Literature, Science, and the Arts, that the courses of study for which they obtained their first degree are equivalent to the courses of study required for the corresponding degree at this University.

Useful and desirable opportunities are thus afforded to college graduates who wish to study law and at the same time to supplement their professional studies with a broader knowledge of other branches that will be helpful to them in their professional work.

It is understood, however, that, if their work in the Department of Law is not satisfactory, the Law Faculty will require students of law to discontinue their studies for the Master's degree.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan Students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan Students, *thirty-five dollars;* for all others, *forty-five dollars.*

Diploma Fee.—For all alike, *ten dollars.*

For additional information in regard to expenses see pages 39 to 41.

SUMMER SCHOOL OF LAW.†

For the summer of 1899, beginning June 26th and continuing for eight weeks, members of the Faculty of the Department of Law, will offer courses of instruction as described below. The work will consist of a thorough review of the leading topics of the law, designed especially to aid those who desire to review work already done for the purpose of preparing themselves to take examinations for admission to the bar, or who wish to secure advanced standing in the regular course of this or other law schools, or who wish to make up back work.

While this review is the primary object of the instruction, many topics will be treated in such a way as to make them desirable for those who wish a knowledge of certain subjects of the law as a part of a liberal education. For such persons the courses in Elementary Law, Contracts, Torts, Bills and Notes, Domestic Relations, Personal Property and Sales, Corporations, and Common Carriers, are particularly recommended.

The first eight subjects in the schedule given below are those usually found in the first year of regular three-year law courses, while the remainder comprise the leading subjects of the second year. The courses designated are, therefore, divided into two classes—one of first-year subjects, and one of second-year subjects—of about 120 hours each, or three hours a day for each class during the eight weeks. These classes are arranged so there is no conflict of subjects, and students can elect such subjects as they desire without limitation, except that no one is permitted to take more than twenty hours a week without special permission of the Faculty.

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* The Matriculation Fee and the Annual Fee must be paid in advance, and no student is allowed to select his seat until after such payment. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

† A special Announcement will be sent, and further particulars given, upon application to Professor E. F. Johnson, Secretary of the Law Faculty.

The work will consist of daily lectures, and recitations from text-books.

ADMISSION.

While no examination for admission is held, it is desired and expected that each applicant will present some evidence showing that he can pursue the work to his advantage, and such as will enable the Faculty to give proper advice as to subjects to be selected, etc. Each applicant should first apply to the Secretary of the Law Faculty and arrange for the courses to be taken and the amount to be paid. He must then register with the Secretary of the University at his office in University Hall, and pay his fees to the Treasurer. On presenting the receipt of the Treasurer to the Secretary, he will be entitled to be enrolled as a student in the School.

COURSES OF STUDY.

During the summer of 1899, the following courses of study will be given:

Elementary Law.—Blackstone, Books I and III. July 17–28. Mr. FARRAH.

Elementary Real Property.—Blackstone's Commentaries, Book II. July 31–August 9. Mr. ROOD.

Contracts.—Anson on Contracts. June 26–July 7. Professor KNOWLTON.

Criminal Law.—Lectures and Text-book. August 7–17. Mr. DWYER.

Torts.—Cooley's Elements of Torts. July 10–28. Professor WILGUS.

Domestic Relations.—Lectures. July 17–August 4. Mr. FARRAH.

Personal Property.—Lectures. June 26–July 14. Professor LANE.

Common Law Pleading.—Stephen's Common Law Pleading. June 26–July 14. Professor BOGLE.

Agency.—Lectures. August 7–17. Mr. DWYER.

Partnership.—Mechem's Elements. August 7–17. Mr. ROOD.

Common Carriers.—Lectures. July 17–21. Mr. DWYER.

Bills and Notes.—Johnson's Elements. June 26–July 21. Professor E. F. JOHNSON.

Real Property, Fixtures, etc.—Lectures. June 26–July 21. Professor THOMPSON.

Equity Jurisprudence.—Lectures. July 31–August 17. Mr. FARRAH.

Equity Pleading.—Thompson's Equity Pleading. July 31–August 4. Mr. DWYER.

Evidence.—Greenleaf, Vol. I. July 31–August 17. Mr. ROOD.

Corporations.—Lectures. July 17–28. Professor WILGUS.

FEES IN SUMMER SCHOOL.

The fee is $35.00 for a course of 100 hours or over, subject to the limitation that no student is permitted to take more than twenty hours a week without special permission of the Faculty, and then only on the terms designated in each particular case. For the work in particular subjects the fees are $4.00 for 10-hour subjects; $6.00 for 15-hour subjects; and $8.00 for 20-hour subjects. All fees are payable strictly in advance.

School of Pharmacy.

A special Announcement giving further information in regard to this School, and containing a register of residences and occupations of the alumni, revised each year so as to show in what work each graduate is engaged, is published annually. For copies of this Announcement, or for other information relating to the School, address Professor A. B. Stevens, Secretary of the Faculty, or the Dean of the School of Pharmacy, Ann Arbor, Michigan.

THE School of Pharmacy gives training for all branches of pharmacy and for various chemical pursuits. It provides a well-grounded preparation for services as a manufacturing chemist or as an analyst. The graduate is assured a thorough qualification for the prescription table, and for the most responsible positions in pharmacy. He is fitted to act as the chemist of the medical profession. In respect to the discipline of both the intellectual and the executive powers, the work of the School offers decided advantages, in the steady requirement of severe studies, and of exact operations, on the part of each student.

The school year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1899, to June 21, 1900). Students of the first year are released the second Friday before Commencement.

For the full regular work admission cannot be granted at any other time than at the opening of the first or the second semester (February 12, 1900), as students are instructed in classes in progressive order. For investigations, or special studies, students can be received at any time when there is room in the laboratories.

REQUIREMENTS FOR ADMISSION.

[For admission to advanced standing, see page 206.]
[For admission of students not candidates for a degree, see page 206.]

The requirements for admission vary in some particulars with the applicant's previous training in practical pharmacy, and with the course of study he intends to pursue. Two courses are offered: a two-year course, leading to the degree of Pharmaceutical Chemist: and a four-year course, leading to the degree of Bachelor of Science in Pharmacy. The requirements are described below in two divisions, according to the degree which the student desires to take.

THE DEGREE OF PHARMACEUTICAL CHEMIST.

Applicants for admission to the two-year course, leading to the degree of Pharmaceutical Chemist, must be at least eighteen years of age.

It will be of advantage to the applicant if he can obtain at least a year of practical training in a drug store before entering the School. The required work leaves the student no time for an engagement in a drug store during the school year.

ADMISSION WITHOUT EXAMINATION.

From High Schools.—Applicants holding diplomas of graduation from any of the full courses of the schools approved by the Faculty of the Department of Literature, Science, and the Arts, and included in the list on pages 54 to 59, are admitted without examination, as are, also, graduates of four-year courses of other high schools of good standing.

From Colleges.—Students who have completed at least one year's work in an approved college of literature and science, and who bring explicit and official certificates describing their course of study and scholarship and testifying to their good character, are admitted without examination. Graduates of colleges of medicine or of pharmacy are also admitted without examination.

ADMISSION ON EXAMINATION.

Applicants who bring evidence of having been engaged in the practice of pharmacy for at least two years are admitted on examination in the following branches:

English.—Exercises in the writing of English with correctness. Especial regard is paid to orthography, punctuation, the use of capitals, grammatical construction, and rhetorical fitness.

Mathematics.—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures. *Algebra.*—Fundamental Rules, Fractions, Equations of the First Degree containing two or more unknown quantities.

Physics.—Carhart and Chute's Elements of Physics, or an equivalent.

Chemistry.—The requirement is intended to cover a year of school work. Laboratory work is advised.

Latin or German.—In Latin, Jones's First Latin Book, or an equivalent amount in any other text-book. Instead of Latin, German to the extent of a full year's study is accepted. Those who have a speaking and reading acquaintance with German are held to an examination in the grammar.

Other applicants are examined in the following branches:

English.—The same as given above.

Mathematics.—*Arithmetic and Algebra.*—The same as given above. *Geometry.*—The elements of Plane Geometry as given in Olney's New Elementary Geometry, Beman and Smith's Plane and Solid Geometry, or an equivalent in other authors.

Latin or German.—The applicant may offer (1) three years of preparation in Latin; or (2) two years in Latin and one year in German; or (3) one year in Latin and two years in German.

Physics and Chemistry.—In each, the same as given above.

Botany.—Practical exercises in the study of common plants, so conducted as to secure a familiar acquaintance with the essential facts of vegetable morphology, physiology, and relationship. The method pursued in Spalding's Introduction to Botany will indicate the kind of work desired.

THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY.

The requirements for admission to the four-year course, leading to the degree of Bachelor of Science in Pharmacy, are and will be in every respect, whether on diploma or by examination, the same as the requirements for admission to the Department of Literature, Science, and the Arts, in the groups which fit students for pursuing the University studies required of candidates for the degree of Bachelor of Science. Of the four groups of requirements described on pages 43 to 49, Group III or Group IV gives suitable preparation for work leading to the degree of Bachelor of Science in Pharmacy; but persons who have completed the requirements in Group I or Group II will be admitted to the School on condition of making up the requirement in chemistry included in Group III. For the rules governing admission from diploma schools, and for a list of schools approved as qualified to prepare students for admission, see pages 53 to 59. The rule relating to admission conditions, printed on page 122, applies also to students admitted to the four-year course in the School of Pharmacy.

ADMISSION TO ADVANCED STANDING.

Students who have gained admission to the School may apply for credit in any of the college studies which they have pursued in another college, or in a high school whose graduates are admitted. Such application should be made to the Dean at the time of entering the School, and will be referred to the professor in charge of the studies in which credit is asked. In each case the professor will determine how much credit, if any, can be given. To this end he may appoint a time for examination of the applicant upon the study. Applicants are desired to bring explicit credentials as to the work done, or to send such credentials in advance, if they wish them acted upon before the opening of the school year.

Students in the four-year course, applying for advanced credit, will govern their applications according to the rules in force in the Department of Literature, Science, and the Arts (page 49), though making their application to the Dean of the School of Pharmacy. Credits are received from the other departments, and from the Summer School, of this University. Not more than six hours of credit from the Summer School in any one year can be appplied toward the degree of Bachelor of Science. Credits from other Schools of Pharmacy are adjusted separately for each study, as stated above. Owing to differences in the order and extent of the studies, credits cannot be counted in years of pharmaceutical college study.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE.

Persons over nineteen years of age who bring evidence of having been engaged in the practice of pharmacy for at least two years, may be admitted to pursue selected studies upon passing the admission requirement in English described on page 204. The same privilege is accorded to persons over twenty-one years of age who have had professional experience approved by the Faculty, whether it has been in pharmacy or in some other pursuit, the same examination being required as to the correctness of English writing.

Students admitted under the above provisions are not regarded as candidates for any degree, and they do not become eligible for graduation until they have passed all the examinations for admission to the course leading to the degree, which they seek to obtain. To become eligible for graduation with the degree of Pharmaceutical Chemist, the student must pass the examination for admission required of those who have been engaged in the practice of pharmacy. To become eligible for graduation with the degree of Bachelor of Science, the student must meet the full entrance requirements of the course leading to that degree.

Students not candidates for a degree may select such studies as they are found prepared to pursue, under the regulations of the Faculty. Courses of selected studies are arranged for students, to suit their purposes and qualifications. Selected studies may be continued so long as, in the judgment of the Faculty, they are carried with success and profit.

TIME OF EXAMINATION.

The examination for admission will be held on Thursday, Friday, and Saturday, September 21–23, 1899, in connection with that of applicants for admission to the Department of Literature, Science, and the Arts (see page 50).

COURSES OF INSTRUCTION.

The courses of instruction comprise lectures, recitations, and laboratory work. The amount of work in each course is expressed in hours, an "*hour*" signifying one exercise a week during one semester. A lecture or recitation is usually one hour in length. A laboratory exercise employs three hours, more or less, being continued until the work assigned to one exercise, or a due proportion of the work assigned to the course, has been completed. The satisfactory completion of one exercise a week during one semester, including a sufficient standing in the examination held at the end of the semester, entitles the student to one *hour of credit* toward graduation. It is expected that a lecture or a recitation, with the personal study necessary to maintain the student's standing in the subject, will take in all as much time as a laboratory exercise. Therefore an *hour of credit* is regarded as having the same value whether obtained in a course of [illegible] or in a course of laboratory exercises.

In the desc[illegible] schedule that follows, the letters A, B, C, etc., indicate [illegible] the several courses in any subject sho[illegible] taken by the student. [illegible] similar or corresponding courses given in the Department of Literature, Science, and the Arts. A further description of these may be found on pages 90 to 104. The amount of credit towards graduation is indicated by the expression *two hours, three hours*, etc.

PHARMACY.

COURSE A. Theory and Practice of Pharmacy. Lectures and recitations. *Five hours.* Second Semester. Assistant Professor STEVENS.

COURSE B. Operative Pharmacy and Pharmaceutical Preparations. Laboratory work and recitations. *Eight hours.* First Semester. Assistant Professor STEVENS.

Course B must be preceded by Course A in analytical chemistry.

COURSE C. Pharmaceutical Technology and Prescription Practice. Lectures and work at the prescription stand. *Four hours.* Second Semester. Assistant Professor STEVENS.

PHARMACOGNOSY.

MICRO-BOTANY, PHARMACOGNOSY, PHARMACOLOGY, MATERIA MEDICA, AND THERAPEUTICS.

COURSE A [Botany, Course 5]. Micro-botany. Practical exercises. *Two hours.* First Semester. Assistant Professor SCHLOTTERBECK.

COURSE B [Botany, Course 6]. Micro-botany. Lectures and laboratory work. *Three hours.* Second Semester. Assistant Professor SCHLOTTERBECK.

COURSE C. Pharmacognosy. Lectures, recitations, and practical exercises. *Three hours.* First Semester. Assistant Professor SCHLOTTERBECK.

COURSE D. Materia Medica. Recitations and lectures. *Two hours.* First Semester. Dr. WALLACE.

Course D may accompany Course C.

COURSE E. Pharmacognosy. Continuation of Course C. *Two hours.* Second Semester. Assistant Professor SCHLOTTERBECK.

COURSE F. Materia Medica. Continuation of Course D. *Two hours.* Second Semester. Dr. WALLACE.

Course F may accompany Course E.

GENERAL CHEMISTRY.

COURSE A [Course 1]. Elementary Inorganic Chemistry. Experimental lectures and recitations. *Three hours.* Either First or Second Semester. Professor FREER or Mr. HIGLEY.

COURSE A^1 [Course 2]. Laboratory work in General Inorganic Chemistry. *Credit arranged with instructors.* Either First or Second Semester. Mr. HIGLEY, Mr. LICHTY, and Dr. SHERMAN.

Course A^1 must be preceded or accompanied by Course A or an equivalent.

COURSE B [Course 5]. Inorganic Chemistry, Descriptive and Experimental. Continuation of Course A. Lectures and recitations. *Five hours.* Second Semester. Mr. HIGLEY.

COURSE AA. Inorganic Chemistry, Descriptive and Experimental. Lectures and quizzes. *Five hours.* First Semester. Professor FREER.

Course AA is a beginner's course extending further than Course A.

COURSE C. Physics. Lectures and recitations. *Four hours.* Second Semester. Mr. LICHTY.

ANALYTICAL CHEMISTRY.

QUALITATIVE ANALYSIS, QUANTITATIVE ANALYSIS, TECHNICAL ANALYSIS.

COURSE A [Course 1]. Qualitative Analysis. Laboratory work and recitations. *Ten hours.* Either First or Second Semester. Also given [as Course 3] *five hours* in First Semester and [as Course 3*a*] *five hours* in Second Semester. Professor O. C. JOHNSON.

Course A should be preceded or accompanied by a course in general chemistry.

COURSE B [Course 4]. Quantitative Analysis. Laboratory work, lectures, and recitations. *Seven hours.* Either First or Second Semester. Professor E. D. CAMPBELL.

Course B must be preceded by Course A.

COURSE C [Course 2]. Advanced Qualitative Analysis. Laboratory work and recitations. Continuation of Course A. *Five hours.* Second Semester. Professor O. C. JOHNSON.

COURSE D [Course 5]. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Either First or Second Semester. Professor E. D. CAMPBELL.

Course D must be preceded by Course B. It is open only to those who receive special permission.

COURSE E [Course 6]. Iron and Steel [illegible] Laboratory work. *Five hours.* Either First or [illegible] Professor E. D. CAMPBELL.

Course E is open to those [illegible] B and have received special [illegible]

COURSE F [Course 8]. [illegible] *hours.* Either [illegible] CAMPBELL.

Course F must be preceded by Course D. It is open only to those who receive special permission.

COURSE G. Water Analysis. Laboratory work and reading. *Three hours.* Either First or Second Semester. Professor PRESCOTT and Dr. GOMBERG.

Course G must be preceded by Course B.

SHORTER COURSES IN QUALITATIVE CHEMISTRY FOR STUDENTS NOT CANDIDATES FOR A DEGREE.

COURSE H. Three Months' Course in Qualitative Chemisty. Laboratory work and recitations. Three classes are formed during the year. They are instructed by a graduate assistant under the direction of Professor PRESCOTT.

COURSE I [Course 3]. First Steps in Qualitative Analysis. Laboratory work and recitations. Second Semester. Professor O. C. JOHNSON.

Course I constitutes about one-half of Course A in analytical chemistry. It gives a little more analytical work than Course H.

ORGANIC CHEMISTRY.

INCLUDING ANALYTICAL AND APPLIED ORGANIC CHEMISTRY.

COURSE A [Course 10]. Carbon Compounds. Lectures. *Five hours.* First Semester. Professor PRESCOTT.

Course A must be preceded by a course in general chemistry and a course in analytical chemistry.

COURSE B [Course 11]. Organic Preparations. Laboratory work in organic synthesis. *Two hours.* Either First or Second Semester. Dr. GOMBERG.

Course B may accompany or follow Course A and may be taken in part, or may be extended, to make *one* hour or *three* hours of credit.

COURSE C [Course 12]. Organic Preparations and Ultimate Analysis. Laboratory work. *Five hours.* Either First or Second Semester. Dr. GOMBERG.

Course C may accompany or follow Course A, either in addition to, or instead of, Course B. Courses B and C may be continued, each for the same time and the same additional credit, and under the same teachers, in either semester, constituting respectively Course BB [11*a*] and Course CC [13].

COURSE D [Course 14]. Organic Analysis and Drug Assaying. Laboratory work and lectures. *Five hours.* Second Semester. Dr. GOMBERG and Mr. A. CAMPBELL.

Course D must be preceded by Course A and by a course (B) in quantitative analysis.

COURSE DD. Sanitary and Commercial Organic Analysis. Laboratory work and reading. Continuation of, or alternative for, Course D. *Five hours.* Either First or Second Semester. Professor PRESCOTT and Dr. GOMBERG.

COURSE E. Toxicology. Inorganic and organic. Chemical and microscopical. Laboratory work and reading. *Three hours.* Either First or Second Semester. Professor PRESCOTT and Dr. GOMBERG.

Course E must be preceded by Course D.

BEGINNING COURSES IN ORGANIC CHEMISTRY IN SECOND SEMESTER.

COURSE F¹. Organic Chemistry. Lectures. *Two hours.* Mr. A. CAMPBELL.

COURSE F² [Course 28]. Organic Chemistry. Lectures. *Four hours.* Professor PRESCOTT.

Courses F¹ and F² are intended primarily for classes in other departments of the University, and are open to students in the School of Pharmacy only by special permission.

PHYSIOLOGICAL CHEMISTRY.

COURSE A. Physiological Analysis. Laboratory work and lectures. *Five hours.* Professor NOVY.

Course A is given three times a year, each class working for three months. It must be preceded by a course in qualitative analysis and by courses in general and in organic chemistry.

COURSE B [Course 7]. Physiological Analysis, including the Analysis of Urine. Laboratory work and lectures. *Seven hours.* Either First or Second Semester. Professor NOVY.

Course B must be preceded by a course in qualitative analysis and by courses in general and in organic chemistry, and it is advisable that it be preceded by a course in quantitative analysis.

COURSE C [Course 3]. Bacteriology. Laboratory work. *Five hours.* Professor NOVY.

Course C is given three times a year, each class working for three months.

PHARMACOLOGY.

COURSE A. Laboratory [illegible] *Three hours.* Either First or Second [illegible] CUSHNY.

Course A [illegible] in organic chem- [illegible] open only to [illegible]

COURSE B. Physiology. Lectures and recitations. *Five hours.* First Semester. Professor LOMBARD.

Course B must be preceded by a course in organic chemistry, and it is also desirable that the student have had studies in anatomy. It is open only to those who receive special permission.

MINERALOGY.

COURSE A. Crystallography. Twelve lectures supplemented by practical exercises. Second Semester. Professor PETTEE.

COURSE B [Course 1]. Lectures and practice. *Two hours.* Either First or Second Semester. Professor PETTEE.

Course B should be preceded by a course in general chemistry. It includes Course A.

COURSE C [Course 2]. Lectures and practice. *Five hours.* Second Semester. Professor PETTEE.

Course C should be preceded by a course in general chemistry and a course in analytical chemistry. It includes Course B.

PHYSICS.

COURSE A [Course 1]. Mechanics, Sound, and Light. *Five hours.* Second Semester. Assistant Professor REED.

Course A is open to those who have passed an entrance examination in physics, and to all others who have sufficient preparation. A knowledge of plane trigonometry is indispensable.

COURSE B [Course 2]. Heat, Electricity, and Magnetism. Lectures. *Five hours.* First Semester. Professor CARHART.

Course B must be preceded by Course A and by a course in general or in analytical chemistry.

RESEARCH.

Courses in Research, in either the first or the second semester, and under the provisions named below, are entitled to such *number of hours* of credit as shall be determined by the professors in charge of the work. In this determination the quality of the work is to be taken as a joint factor with the time it has employed. The period of research is limited, for undergraduates, to the final semester in the two-year course, and to the senior year in the four-year course. Graduates of other colleges may enter at once upon research in this School. Holders of a Fellowship in this School must devote themselves wholly to research, and graduate students may do so if they desire.

Provision for the support of workers in research in this University is made by the Committee of Revision of the United States Pharmacopœia.

EXAMINATIONS.

An examination upon each course of instruction is held at the time the work of the course is completed. The examinations, therefore, are held mostly at the end of a semester, in February and in June.

The result of an examination is reported to the Faculty by the professor in charge, for each student enrolled, in terms as follows:

Passed.—Entitling the student to full credit for the course.

Conditioned.—Imposing some specified condition, usually to take another examination, the condition to be fulfilled before credit can be given.

Provisionally Passed.—Withholding the credit from the course until the student shall have done better work in other studies, in the judgment of the Faculty as a whole, which can change the record of Provisionally Passed to a record of Passed, or Conditioned, or Not Passed, whenever such change shall be justified by the scholarship of the student in his several studies.

Not Passed.—Requiring the student to go over the regular exercises of the study again before he receives another examination.

Absent.—With statement of the cause of absence; if the student have left the class, stating at what time; or stating if absent without excuse or explanation.

SUCCESSION OF STUDIES.

I. IN THE TWO-YEAR COURSE.

First Year, First Semester:—General Chemistry AA; Analytical Chemistry A (qualitative); Pharmacognosy A (micro-botany).

First Year, Second Semester:—Analytical Chemistry B (quantitative); Pharmacognosy B (micro-botany); Pharmacy A; General Chemistry C (Physics).

Second Year, First Semester:—Pharmacy B (laboratory and lectures); Organic Chemistry A; Pharmacognosy C and D (materia medica).

Second Year, Second Semester:—Organic Chemistry D (drug assaying); Pharmacy C (technology and perscription practice); Pharmacognosy E and F (materia medica); Mineralogy A (crystallography); Research.

The studies enumerated above are without exception required for the degree of Pharmaceutical Chemist. They constitute an amount of work which taxes the full working power of a student of average quickness and strength of scholarship. Students who desire a longer time for the same work may apply for it on entering college, or during the first semester, and obtain from the Faculty a distribution of all the work through five semesters, or six semesters, as found advisable in each case.

II. IN THE FOUR-YEAR COURSE.

The student is limited by rule to *sixteen hours* of credit (sixteen exercises a week) in each semester.

The student must present at the beginning of each semester, his election of studies for that semester, using a blank provided for that purpose. The election of studies are subject to approval of the Faculty, which will take action upon them without delay, and all further adjustments of studies are to be completed as early as the first Saturday of the semester. The studies prescribed for graduation are given on pages 215 and 216. All the studies of the School are open to election.

ADVISORY SEQUENCE OF STUDIES.

Students who enter the School prepared in Latin, in German, and in chemistry, as high school studies, are advised to arrange their work in accordance with the scheme printed below. Students who enter with French instead of German, or without chemistry, are advised, in general, to follow the same scheme, with such modification as may be necessary.

First Year, First Semester:—Mathematics [1*a*], three hours; French, four hours; German, two hours; Pharmacognosy A, two hours; General Chemistry A^1, three hours; English [1], two hours.

First Year, Second Semester:—Mathematics [2*a*], four hours; Physics A, five hours; Pharmacognosy B, three hours; German, two hours; English [1*a*], two hours.

Second Year, First Semester:—Anaylitical Chemistry A, ten hours Pharmacognosy C, two hours; French, two hours; Mineralogy B, two hours.

Second Year, Second Semester:—Analytical Chemistry B, seven hours; Pharmacy A, three hours; Pharmacognosy E, two hours; General Chemistry A, and a part of B, six hours.

Third Year, First Semester:—Pharmacy B, ten hours; Organic Chemistry A, and a part of B, six hours.

Third Year, Second Semester:—Organic Chemistry D, five hours; Pharmacy C, four hours; Elective studies, not to exceed seven hours, taken from the following: Physiological Chemistry A, five hours, or C, five hours; Organic Chemistry BB, two hours, or C, five hours; French or German; Physics B, five hours.

Fourth Year, First Semester:—Pharmacognosy D, three hours; Pharmacology A, three hours, and B, five hours. Elective studies and studies in research.

Fourth Year, Second Semester:—Pharmacognosy E and F, five hours; Analytical Chemistry G, three hours; Research.

III. IN SELECTED STUDIES.

Students not expecting to graduate can enter for selected studies at the beginning of the first semester (September 26, 1899), at the beginning of the second semester (February 12, 1900), and, for certain studies, January 9 and March 26, 1900.

For pharmaceutical purposes, the student who is limited to one year will do well to take the regular studies of the first year in the Two-Year Course as given on page 213.

Of the shorter courses usually most available for students having limited time the following may be named:

Pharmacognosy A and C; General Chemistry A and AA; Organic Chemistry F^1 and F^2; Analytical Chemistry I.

All the work of the School is open to students not candidates for a degree, so far as they are prepared to engage in it.

REQUIREMENTS FOR GRADUATION.

[Experience in the business of pharmacy is not made a requirement for a degree.]

THE DEGREE OF PHARMACEUTICAL CHEMIST.

The degree of Pharmaceutical Chemist is conferred upon students who have completed the course of prescribed study enumerated on page 213 and have obtained credit for examination in these courses in the manner above stated.

THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY.

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Pharmacy, the student must secure *one hundred and twenty Hours of Credit.* The prescribed portion of this work is as follows, the figures in brackets denoting courses given in the Department of Literature, Science, and the Arts (compare pages 70 to 90):

In English: Courses [1], [1*a*].

In German: (*a*) for those who entered *without* German, Courses [1], [2]; or (*b*) for those who entered *with* German, four hours.

In French: (*a*) for those who entered *without* French, Courses [1], [2], or an equivalent; or (*b*) for those who entered *with* French, four hours.

In Mathematics: Courses [1*a*], [2*a*].

In Physics: Course A [1].

In General Chemistry: (*a*) for those who entered *without* chemistry, Courses A, B; or (*b*) for those who entered *with* chemistry, Course B.

In Analytical Chemistry: Courses A, B.
In Organic Chemistry: Courses A, D.
In Mineralogy: Course B.
In Pharmacognosy: Courses A, B, C, D, E, F.
In Pharmacy: Courses A, B, C.

From the other courses offered in the School, or in other departments of the University, the student must choose, with the approval of the Faculty, and complete enough, including those above prescribed, to make in all *one hundred and twenty* hours of credit.

STEARNS FELLOWSHIP.

The Stearns Fellowship in research has been maintained since 1895, by means of gifts made for this purpose by Messrs. Frederick Stearns & Company, of Detroit. The income of the Fellowship at present is three hundred and fifty dollars a year. In 1898–99 the research is on the chemistry of certain medicinal plants. Appointments to the Fellowship are made by the Faculty from graduates of the School who have qualifications for the work.

LIBRARY, BOOKS OF REFERENCE, AND TEXT-BOOKS.

The School has an extensive library, the main portion of which is shelved with the General Library of the University (see page 23). It contains complete sets of the journals, the original repositories of the sciences related to pharmacy, as well as the current periodicals of the profession, encyclopædias and hand-books of chemistry and pharmacy, and the latest works of value in study. The works of reference in use in the School may be estimated at about four thousand volumes.

A working library, in a reading alcove of the chemical building, is provided with several hundred volumes for immediate reference, duplicates of those in the General Library. These works are in constant use by students in connection with their laboratory work, and in preparing for their recitations.

Files of current numbers of the journals of pharmacy of the United States are kept in the museum of the School (see page 27) where they are accessible to all students.

The text-books in use in the school include the following: In General Chemistry, Freer; in Qualitative Analysis, Prescott and Johnson; in Pharmacy, the U. S. Pharmacopœia, and Coblentz; in Botany, Bastin; in Pharmacognosy, Flückiger; in Materia Medica; Sayre, and White and Wilcox; in Organic Chemistry, Bernthsen; in Organic Analysis, Prescott.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Diploma Fee.—For all alike, *ten dollars.*

Laboratory Expenses.—These vary with the prudence and economy of the student, the average amount being about one dollar and twenty cents a week.

For additional information in regard to expenses see pages 39 to 41.

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* The Matriculation Fee and the Annual Fee must be paid in advance. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Homœopathic Medical College.

A special Announcement giving further information in regard to this College is published annually. For copies of this Announcement or for other information relating to the College, address Dr. Roy S. Copeland, Secretary of the Faculty, Ann Arbor, Michigan.

THE Homœopathic Medical College, established as a Department of the University in 1875, offers superior advantages to students who desire thorough instruction in homœopathy. It has commodious buildings on the University campus and, a few blocks distant, a new and well-equipped hospital.

The college year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1899, to June 21, 1900). The full course covers four college years.

REQUIREMENTS FOR ADMISSION.

Every applicant for admission to the Homœopathic Medical College must be at least seventeen years of age, and must present to the Faculty satisfactory evidence of a good moral character.

Women are admitted, as to all other departments of the University, on the same conditions as men.

Matriculates in a regular course in the Department of Literature, Science, and the Arts (page 42), graduates of literary colleges of good standing, graduates of approved diploma schools* and of other high schools of equal standing, are admitted without examination on presentation of proper evidence to the Secretary of the Faculty. For all others the requirements for admission are as follows:

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* The diploma schools comprise all those approved by the Faculty of the Department of Literature, Science, and the Arts. For a list of these see page 54.

English.—Each applicant will be asked to write an essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and paragraphing.

Mathematics.—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures. *Algebra.*—Fundamental Rules, Fractions, Equations of the First Degree containing two or more unknown quantities. *Geometry.*—Plane Geometry.

Physics.—An amount represented by Carhart and Chute's Elements of Physics.

Botany.—The Elements of Vegetable Anatomy and Physiology as given in Spalding's Introduction to Botany.

Zoology.—Packard's Zoology, briefer course; or McMurrich's Invertebrate Morphology.

History.—Myers's General History, or an equivalent; and Johnston's History of the United States or McLaughlin's History of the American Nation.

Latin.—Jones's First Latin Book, or an equivalent amount in any other text-book. An applicant who is not prepared to pass the examination in Latin, may take a condition in this subject, which condition he must remove before entering on the work of the second year.

Examinations for admission will be held, Monday, September 25, 1899. Applicants are required to present themselves on this day, as they are expected to be in attendance on the first day of the term, when the regular course of instruction begins. To provide for cases in which it is absolutely impossible for the applicant to be present at the time announced, supplementary examinations will be held at such time as may be determined upon by the Faculty; but no excuse, except of an urgent character, will be accepted for failure to appear at the first examination.

Before admission to examination, every applicant is required to present to the Secretary of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee; it will, therefore, be necessary for him to apply first to the Secretary of the University at his office in University Hall, register his name as a student in the Homœopathic Medical College, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

ADMISSION TO ADVANCED STANDING.

Persons who have studied medicine elsewhere may be admitted to advanced standing upon evidence of proficiency in the studies which have already been pursued by the class to which they seek admission

Students in the Department of Literature, Science, and the Arts, who desire to study medicine in this college can gain advanced standing by taking, as a part of their work in that department, courses practically identical with some of those prescribed for graduation in medicine. By making proper choice of elective studies, it is possible for a student to earn the two degrees, Bachelor of Science and Doctor of Medicine, in six years (compare pages 110 to 113 and 174). Students desiring to take advantage of this opportunity for combining literary and professional work should consult the Dean of the College, and should consult frequently, after the first year of residence in the University, with a committee appointed to consider questions arising in this connection. This committee consists at present of Professors W. B. HINSDALE and R. S. COPELAND.

COURSE OF INSTRUCTION.

Surgery.—A complete course of lectures on minor surgery and bandaging is given to students of the first year.

A complete course of lectures on operative surgery, fractures, and dislocations, and on the principles of surgery, is given to students of the third and fourth years.

Candidates for graduation are required to demonstrate their knowledge of operative surgery by operating on the cadaver, a requisite number being provided by the authorities without expense to the class.

Students are assigned cases to diagnose and present to the class; and, under proper direction, are allowed to make the necessary preparations for operations, and to assist, when assistance is required. Advanced students under the immediate supervision of the surgeon in charge, are also allowed to treat patients that have been operated upon. Special effort is made to remove the criticism against practitioners of Homœopathy that they have no knowledge of surgery.

Materia Medica and Therapeutics.—Materia Medica is taught as a natural science. Three lectures are given weekly, based as far as possible on studies of the original provings, paying special attention to the genius of each drug, its characteristics, and its relationship to other drugs. The physiological action of drugs, as ordinarily understood, is duly considered.

Systematic instruction in the principles and philosophy of Homœopathy is a special feature. This course, based upon Hahnemann's Organon is given to the whole body of students, beginners as well as the more advanced, in order to fix in their minds the underlying principles of the science of homœopathic practice.

A thorough laboratory course in drug proving is a special feature of this college. Students are required to do a certain amount of original work in drug pathogenesy under the supervision of the professor of materia medica. A course in homœopathic pharmacology is also given.

Pharmacy and Pharmacology.—Each student is required to prepare from the crude material, ready for use, a series of remedies. A practical course in field medical botany is given by a demonstrator who goes with the class to places where native medicinal plants are found growing in their natural condition. The plants are gathered and prepared for making mother tinctures and for trituration.

The Principles of Medicine.—The principles of medicine are taught in a separate course in which the scientific explanation of disease, and the principles upon which a system of cure must be constructed, are discussed. Attention is given to historic medicine and the various systems that have been in vogue as means of attempted cure. In the medical clinic the idea is never lost sight of that the function of the physician is to cure the sick, and that to accomplish this end accurate prescribing is of the highest importance.

Theory and Practice.—The instruction in theory and practice is didactic and clinical. The subject is divided into separate courses covering all the ground, both general and special, with which a physician in general practice must be familiar. In this connection a special course in diseases peculiar to childhood, and in the feeding of infants and invalids, is given. The aim is to make the student, by applying his knowledge of pathology, a good diagnostician, and, by his knowledge of materia medica, a good prescriber. In the clinics especial attention is given to dietetics and other regimenal means of treatment.

Medical and Physical Diagnosis.—Diagnosis is taught as a separate branch, with the use of text-books supplemented by lectures and practical demonstrations. This subject occupies one hour a week throughout an entire year.

Obstetrics and Gynæcology.—The course of study in these branches is so arranged that separate lectures are given to the several classes in a graded course. Students of the first year are drilled in the fundamental branches of gynæcology, and are taught the use of instruments, the various methods of making gynæcological examinations, etc. With the third year the student enters upon both didactic and clinical work. In the last year of the course lectures are delivered upon special subjects and the senior students are required to make physical and local examinations in the sub-clinics of this department, thus familiarizing themselves with the various methods of practicing touch, palpation, obstetric auscultation, etc., and utilizing to the best possible advantage the many patients availing themselves of this special department of the clinic. Cases of obstetrics are assigned to each senior for his especial delivery and personal attendance.

Ophthalmology, Otology, and Laryngology.—Regular lectures on these important specialties, amply illustrated from the abundance of clinical material at the disposal of the Faculty, are given in the third and fourth years. The eye-and-ear, nose, and throat clinic forms one of the most interesting features of the clinical work, and affords the class every facility for a thorough practical study of all the diseases of these organs, that come under the observation of the physician. Students have cases assigned them for dressing and treatment, from time to time, and thus acquire practical skill and knowledge in diagnosis, in the use of the various instruments, and in the correction of errors of refraction.

Mental Diseases.—A special course of lectures on mental diseases is given by Dr. Oscar R. Long, Superintendent of the Michigan Asylum for Insane Criminals.

Nervous Diseases.—Every effort is used to make this department of study as complete as possible. There is an abundance of clinical material to demonstrate all the more frequent forms of nervous diseases as well as many of the rarer ones.

Diseases of Children.—A full course of instruction is given in this subject.

Demonstration Courses in the Specialties.—Before graduation each student is required to do actual work in demonstrating his medical and surgical skill. By operating upon the cadaver and upon animals; by manipulation of manikins and models; by actual dressing of wounds and bandaging; by thorough drill in the practical use of the ophthalmoscope, the laryngoscope, the test case, and spectacle fitting; by the use of the microscope and spectroscope; by the making of tinctures and dilutions; by bedside demonstrations and examinations; by actual prescribing; by these methods the students become practical and are prepared to make successful physicians. The classes are divided into sections, and each individual has his share of actual work. For these demonstration courses there is no extra expense. Students also assist at operations and take turns in ward visiting. It is believed that the advantages offered for the practical application of theoretical knowledge are unsurpassed in this country. Students come in personal contact with the members of the Faculty and profit accordingly.

INSTRUCTION FOR WOMEN.

The course of instruction for women is in all respects equal to that for men. Practical Anatomy is pursued by the two sexes in separate rooms; but in the lectures, in public clinics, in the laboratories, and in various class exercises, it is found that both sexes may attend with propriety at the same time.

SCHEDULE OF STUDIES.

The following schedule shows the arrangement of studies for the course of four years. Three or more lectures are given each forenoon; the afternoons are devoted to laboratory and to clinical work. The subjects taught by members of the Faculty of the Department of Medicine and Surgery are marked with an asterisk (*). For further information in regard to this work see page 171.

FIRST YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

Subjects.	*Time Required.*
Principles of Medicine,	1 hour a week.
*Osteology,	2 hours a week.
*General Anatomy,	2 hours a week.
*General Chemistry,	5 hours a week.
*Qualitative Analysis,	2 hours a week.
*Bacteriology,	4 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

Subjects.	*Time Required.*
Materia Medica,	2 hours a week.
Pharmacy,	1 hour a week.
*General Anatomy,	2 hours a week.
*Physics,	4 hours a week.
*Organic Chemistry,	5 hours a week.
*Histology,	4 hours a week.

LABORATORY WORK IN FIRST YEAR.†

Subjects.	*Time Required.*
*Anatomy,	Every day for 12 weeks.
*Chemistry,	Every day for 12 weeks.
*Bacteriology,	Every day for 12 weeks.

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† Four to five hours constitutes a day's work in the laboratory.

SECOND YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

Subjects.	*Time Required.*
Materia Medica,	2 hours a week.
Minor Gynæcology,	1 hour a week.
Principles of Medicine,	1 hour a week.
Theory and Practice,	1 hour a week.
Surgery,	2 hours a week.
Pathology,	1 hour a week.
*Physiology,	5 hours a week.
*Hygiene,	3 hours a week.
*Embryology,	4 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

Subjects.	*Time Required.*
Materia Medica,	2 hours a week.
Minor Gynæcology,	1 hour a week.
Principles of Medicine,	1 hour a week.
Theory and Practice,	1 hour a week.
Surgery,	2 hours a week.
Pathology,	2 hours a week.
*Physiology,	5 hours a week.
*Physiological Chemistry,	3 hours a week.
*Hygiene,	2 hours a week.

LABORATORY WORK IN SECOND YEAR.

Subjects.	*Time Required.*
*Anatomy,	Every day for 12 weeks.
*Physiological Chemistry,	Every day for 12 weeks.
*Histology,	Every day for 6 weeks.

THIRD YEAR.

LECTURES AND RECITATIONS IN THIRD YEAR.

Subjects.	*Time Required.*
Minor Gynæcology,	1 hour a week.
Major Gynæcology,	2 hours a week.
Obstetrics,	2 hours a week.
Surgery,	3 hours a week.
Theory and Practice,	3 hours a week.
Ophthalmology, Otology, and Laryngology,	3 hours a week.
Materia Medica,	3 hours a week.
Pathological Histology,	2 hours a week.

LABORATORY WORK IN THIRD YEAR.

Subject.	*Time Required.*
*Practical Pathology,	Every day for 8 weeks.

CLINICAL COURSES IN THIRD YEAR.

Subjects.	*Time Required.*
General Medicine,	2 hours a week.
Surgery,	2 hours a week.
Gynæcology,	2 hours a week.
Ophthalmology, Otology, and Laryngology,	2 hours a week.

FOURTH YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

Subjects.	*Time Required.*
Theory and Practice,	3 hours a week.
Surgery,	3 hours a week.
Obstetrics and Gynæcology,	3 hours a week.
Materia Medica and Therapeutics,	3 hours a week.
Ophthalmology, Otology, and Laryngology,	2 hours a week.
Mental and Nervous Diseases,	1 hour a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

Subjects.	*Time Required.*
Theory and Practice,	3 hours a week.
Surgery,	4 hours a week.
Obstetrics and Gynæcology,	3 hours a week.
Materia Medica and Therapeutics,	3 hours a week.
Ophthalmology, Otology, and Laryngology,	2 hours a week.
Mental and Nervous Diseases,	1 hour a week.
Medical Jurisprudence,	1 hour a week.

CLINICAL COURSES IN FOURTH YEAR.

Subjects.	*Time Required.*
General Medicine,	2 hours a week.
Surgery,	2 hours a week.
Gynæcology,	2 hours a week.
Ophthalmology, Otology, and Laryngology,	2 hours a week.

EXAMINATIONS.

At the end of each semester examinations (written, oral, or both written and oral) are held on all subjects taught during the semester, and each student's grade is entered upon the records of the Faculty. Students "*conditioned*" cannot apply for another examination in the same subject until the close of the next course or semester, except that a student conditioned at the close of the college year may ask for another examination in the first two weeks of the following year. Students reported "*not passed*" are required to take the course over again before applying for another examination.

REQUIREMENTS FOR GRADUATION.

To be admitted to the degree of Doctor of Medicine, a student must be twenty-one years of age and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have been engaged in the study of medicine for the period of four years, the last two of which must have been in this college.

GRADUATE COURSES.

Medical science has made such rapid progress during recent years that graduates of a short time ago feel the necessity of returning to the medical centres for further light in the modern advances. The laboratories and special courses of this college offer superior advantages to graduates.

The nature of the work arranged for graduate students in hygiene, bacteriology, electrotherapeutics, pathology, physiology, histology, chemistry, and anatomy may be learned by a reference to page 175.

In the practical branches, such as materia medica, physical diagnosis, surgery, ophthalmology, otology, laryngology, obstetrics, and gynæcology, graduate instruction may be had, by special arrangement with the professors in charge, in connection with the demonstration courses given to students in the last two years of their course.

SPECIAL LECTURE AND CLINICAL COURSES FOR GRADUATES AND PRACTITIONERS.

From February 14 to March 3, 1899, a special course of 28 lectures is offered on a variety of subjects interesting to graduates and to physicians in active practice, and in this connection there is also offered a special practitioner's clinical course, covering nine clinics, from February 27 to March 3.

In this work the Faculty will be assisted by Dr. DEAN T. SMITH, of Jackson, and by Dr. HAMILTON F. BIGGAR, of Cleveland, Ohio.

The fee for the lecture course is *ten dollars*, and a certificate stating the amount of work accomplished will be given all those who complete the course and who already hold the degree of M.D. No fee is charged and no certificate is given those who attend the clinics alone.

FACILITIES FOR INSTRUCTION.

Museums and Laboratories.—The museums of anatomy and materia medica, comprising thousands of specimens, models, and charts, afford the best means attainable for the close study of anatomy, physiology, and pathology. The general and special cabinets of the University, containing about 255,000 specimens, are also open freely to all students. (Compare pages 25 to 29.) The facilities for the study of chemistry, afforded by the chemical laboratory, are not excelled in any medical college in this country, and the arrangements for the laboratory work are such that medical students, in classes, and working under the direction of the professors in charge, receive practical instruction in the courses in qualitative chemistry and in the analysis of urine, a knowledge of which has become absolutely indispensable to the successful physician. The histological laboratory, amply supplied with microscopes, sphygmographs, stereopticon, etc., offers rare facilities for the prosecution of practical work in experimental physiology and histology. The hygienic and anatomical laboratories are models of beauty and convenience, affording facitities for instruction in hygiene and in practical anatomy, unsurpassed, if equalled, by those of any other institution of learning in the United States. For a more full description of the laboratories of the University used by homœopathic students in common with students of other departments, see pages 29 to 33, and 176 to 181.

Pathogenetic Laboratory.—A laboratory of experimental pathogenesy, in the Homœopathic Building, is equipped with the necessary apparatus for experimentation with medicinal substances on the healthy human body. This is a special feature of this college. Provings are made, and each student is required to do a certain amount of original work and research in the pathogenic field. A complete course in homœopathic pharmaceutics is also given in this laboratory.

Libraries.—The General Library of the University (see page 23) is open to the free use of students. Important additions have recently been made to the collection of works on homœopathy. There is also a free reading room in the Homœopathic Building, where all the homœopathic publications of note are kept on file.

Other Facilities.—Students in the Homœopathic College have the privilege of attending the scientific and philosophical lectures, collateral to medicine, given in the Department of Literature, Science, and the Arts. For a description of the gymnasiums, and the conditions on which they are open to students, see page 35.

THE UNIVERSITY HOSPITAL, HOMŒOPATHIC.

The University Hospital, Homœopathic, is in charge of a competent resident medical officer and an experienced matron, and is provided with a corps of trained nurses; it contains large, airy, and well-lighted wards for male and female patients, private rooms for special patients, rooms for antiseptic surgery and for lying-in cases, dispensary, etc., all under the immediate direction of the Faculty, the members of which attend upon the sick in the hospital, and draw from them the material for clinical instruction.

Surgical, medical, gynæcological, neurological, and ophthalmological clinics are held daily in the spacious clinical amphitheatre, at which times examinations of patients are made by the professors in charge, and by students under the direction of professors, prescriptions given, and surgical operations performed in the presence of the class. The several clinics are held on separate days, of which the profession throughout the State will be notified. The clinical advantages of the college are steadily increasing.

In addition to special rooms with all modern apparatus and appliances for antiseptic surgery, there is a lying-in ward. Each senior student is required to attend cases of labor and become familiar with the duties of the lying-in room, under the immediate direction of a member of the Faculty.

The hospital is furnished with all modern electrical appliances, and, where indicated, skilled attendants apply electrical treatment. The junior and senior students receive special instruction in this line.

Much attention is paid to physical diagnosis, and the abundance of clinical material furnishes many interesting cases. Students are required to take the history of patients and, under proper supervision, make personal examination and prescribe remedies. It is the aim of the Faculty to make clinical instruction systematic and thorough.

The hospital is kept open for patients during the college year, but no contagious diseases are admitted. Under the present organization, patients are much better accommodated, and clinical instruction is rendered more systematic and efficient than was formerly possible. The expenses to patients are only for their board, for unusual appliances or special nursing, and for medicines, the services of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to the medical superintendent to ascertain if there is room for their accommodation, and to obtain a circular giving more fully the rules governing admission.

Training School for Nurses.—In connection with the Hospital there is a training school for nurses under the charge of a competent and experienced principal. The term of study and service extends through two years, at the expiration of which time those who have proved trustworthy are granted certificates of graduation. For further information in regard to this school, application may be made to Dr. ROY S. COPELAND, Ann Arbor, Michigan.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Diploma Fee.—For all alike, *ten dollars.*

Graduate Courses.—A fee of *ten dollars* is charged graduate students for each course taken. Graduate students who pursue laboratory courses, are also required to pay the ordinary laboratory expenses of such courses.

Laboratory Expenses.—In the laboratories, the students pay for the material used, and the expenses vary somewhat with the care and economy practiced. The required laboratory courses cost approximately as follows:—

Anatomy	$20 00
Chemistry	15 00
Bacteriology	15 00
Physiological Chemistry	15 00
Histology	7 00
Pathological Histology	10 00

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is, for Michigan students, about $240.00; and for others, about $295.00, varying a little with the student's actual laboratory expenses.

For additional information in regard to expenses see pages 39 to 41.

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* The Matriculation Fee and the Annual Fee must be paid in advance, and no student can select his seat until after such payment. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Students arriving in Ann Arbor, and desiring further information, should apply at the office of the Faculty, in the Homœopathic College, North University Avenue. The office will be open daily after the 20th of September, and members of the Faculty, or some one who can give information, will be in attendance.

College of Dental Surgery.

A special Announcement giving further information in regard to this College is published annually. For copies of this Announcement, or for other information relating to the College, address Dr. J. Taft, Dean of the College, Ann Arbor, Michigan.

THE College of Dental Surgery was established as a Department of the University in 1875. The college year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1899, to June 21, 1900). The lectures close about June 9, in order to allow time for the final examinations before Commencement.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be at least eighteen years of age, and must present to the Faculty satisfactory evidence of good moral character. This should be in the form of a letter from a reputable dental or medical practitioner in the place from which the applicant comes.

Matriculates in the other scientific departments of the University, and graduates of recognized colleges, academies, or high schools, are admitted without further examination on presentation of proper diploma or certificate. Commercial and English diplomas are accepted only so far as they include the studies indicated in the scheme for examination as printed below. Applicants are requested to bring or to send to the Secretary of the Faculty a statement from the superintendent of the school from which the diploma was obtained, naming the subjects studied and the credit given for each study. Blank forms on which to make such statement will be furnished on application to Dr. N. S. Hoff, Secretary of the Faculty of the College.

All other applicants are examined as to their previous education and their fitness to enter on the technical study of dentistry. The subjects on which examinations are held are as follows:

English.—The purpose of the examination is to test the applicant's ability to write good English. To this end he will be asked to write an essay of at least three hundred words, upon some subject assigned him at the examination. The language of the essay must be grammatical and clear. The spelling, punctuation, and capitalizing must be correct. The applicant must show ability to discriminate in the use of words and to construct well-organized sentences and paragraphs.

As preparation for this requirement, sustained and regular practice in writing is earnestly recommended. The student should prepare numerous written exercises so selected as to give proper training in several types of discourse.

History.—Myers's General History, or an equivalent, and McLaughlin's History of the American Nation.

Mathematics.—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution; and the Metric System of Weights and Measures. *Algebra.*—Fundamental Rules, Fractions, Equations of the First Degree, containing two or more unknown quantities. *Geometry.*—Plane Geometry.

Physics.—An amount represented by Avery's Natural Philosophy or Carhart and Chute's Elements of Physics.

Latin.—Jones's First Latin Book, or an equivalent amount in any other text-book.

Botany, Zoology, Physical Geography, and Physiology.—The applicant must offer *two* of these subjects. The requirements in each subject are as follows:

Botany.—The elements of Vegetable Morphology and Physiology as given in Spalding's Introduction to Botany.

Zoology.—Packard's Zoology, briefer course.

Physical Geography.—Tarr's Elementary Physical Geography, especially chapters 9 to 21 inclusive, or an equivalent.

Physiology.—Martin's The Human Body.

Additional Requirements in 1900.

In the year 1900, and thereafter, additional examinations will be held, as follows:

Latin.—Two books of Caesar.

General Chemistry.—The requirement is intended to cover one year's work. As a text-book, Remsen's Introduction to the Study of Chemistry, is recommended. The text should be accompanied by laboratory work, if possible.

An entrance examination will be held in Ann Arbor, at 10 A. M., Monday, September 25, 1899. Applicants are expected to be present at that time, but to provide for cases in which it is impossible for the applicant to be present, other examinations will be held at such times as may be determined by the Faculty.

Before admission to the examination, every student is required to present to the Dean of the Faculty the Treasurer's receipt for the payment of the matriculation fee and annual fee. It will therefore be necessary for the candidate to apply first to the Secretary of the University at his office in University Hall, register his name as a student in the College of Dental Surgery, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

Admission examinations are also held at times designated by the examiners between June 1 and September 10 of each year, at the places and by the persons named below:

Dr. William Mitchell, No. 39 Upper Brook St., London, W., England.
Dr. Victor H. Jackson, 240 Lenox Ave., New York, N. Y.
Dr. Alfred W. Hoyt, 243 Wabash Ave., Chicago, Ill.
Dr. Immer C. St. John, Minneapolis, Minn.
Dr. J. Taft, northeast corner of George and Elm Sts., Cincinnati, O.

These examinations are conducted in writing, and the papers written by the applicants are sent to Ann Arbor to be passed upon by the Faculty of the College.

In order to receive credit for a full course, students must enter within ten days after the opening of the college year. Students are allowed to enter, however, at the beginning of the second semester (February 12, 1900) and receive credit for a half-year's work. It is very important that first-year students be present promptly at the opening of the year.

ADMISSION TO ADVANCED STANDING.

Persons having qualifications for admission to this college, and having studied dentistry in other recognized schools for at least one year, may be admitted to advanced standing after having passed a satisfactory examination on all the studies which have already been pursued by the class to which they seek admission.

Graduates of the Department of Medicine and Surgery (page 168) or other medical college of equal rank, are allowed credit toward graduation for so much of the required course in dentistry as was included in their medical course.

ASSIGNMENT OF SEATS.

Students are allowed to select [illegible] lecture room and places in the dental laboratory in the order [illegible] they matriculate; and each student is expected to occupy the [illegible] during the session.

COURSE OF INSTRUCTION.

In the arrangement of the course of study it is the aim to make it such as will meet the requirements of the student and the expectation of the profession, and will secure the greatest benefit to the public. To accomplish these objects, and to accommodate and benefit those students who desire a thorough dental education, the course of instruction is made to cover three college years of nine months each. The course thus affords time for the teaching and study of subjects not generally taught; and especially does it give time for thorough work in the laboratories. Though not fully covering the defects of preliminary education, this course, supplemented by repeated examinations and written exercises remedies some deficiencies of earlier training and is of itself an efficient means of mental discipline, and of professional and scientific culture.

In the arrangement of the work a graded course of study is combined with repetition of such lectures only as will avoid the confusion incident to the presentation of too many parts of the general subject to the mind of the student at an early period of his studies, and also obviate the objection of dismissing one part of a subject before its relations to other parts can be seen and appreciated.

*SCHEDULE OF STUDIES.**

FIRST YEAR.

FIRST SEMESTER.

Subjects.	*Hours.*
Osteology and Anatomy,	51
General Chemistry,	85
Prosthetic Dentistry,	17
Dental Laboratory Work,	400

SECOND SEMESTER.

Subjects.	*Hours.*
Organic Chemistry,	51
Descriptive Anatomy,	51
Histology (lectures),	51
Prosthetic Dentistry,	17
Dental Laboratory Work,	400

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*The column of hours gives the total number of hours of work required for each semester.

SECOND YEAR.

FIRST SEMESTER.

Subjects.	*Hours.*
Physiology,	85
Bacteriology,	68
Operative Principles and Materials,	17
Prosthetic Dentistry,	17

SECOND SEMESTER.

Subjects.	*Hours.*
Dental and Comparative Anatomy,	34
Physiology,	85
Operative Principles and Materials,	17
Prosthetic Dentistry,	17

Laboratory Work in Second Year.

The following subjects make a continuous course of laboratory instruction running through the year. The hours for laboratory work must be chosen at the opening of the year, preference being allowed in the order of registration.

Subjects.	*Hours.*
Regulating and Porcelain Technique,	80
Dissection,	120
Histological Laboratory Work,	80
Qualitative Chemistry,	120
Operative Technique,	120

THIRD YEAR.

The Courses extend through the entire year.

Subjects.	*Hours.*
Dental Surgery and Pathology,	100
Oral Surgery,	68
Dental Medicine,	100
Orthodontia and Oral Deformities,	34
Prosthetic Clinic,	300
Operative Dentistry,	34
Operative Clinic,	500

DESCRIPTION OF COURSES.

Anatomy is studied didactically and practically. A full course on general osteology is taken with the medical classes in the Department of Medicine and Surgery [illegible]. A special course of sixty lectures is given to students [illegible] anatomy of the head, face, neck, thorax, abdom[illegible] and on the nervous and vascular systems; from six to eight lectures are given on the extremities and pelvic region. In practical anatomy the same regions are dissected, independent of the medical classes, though under the same demonstrator. The most careful consideration is given to the parts of immediate concern to dental students. The didactic course is taken during the freshman year, and the practical course at the beginning of the junior year. By this arrangement the practical course is more carefully done, and serves as a review exercise to fix the subject more thoroughly in the memory. The work in anatomy also includes a course in regional dental, and comparative dental anatomy. This is the nature of a series of quiz exercises on the technical anatomy of the face and mouth; on cutting and studying the structures of human teeth in sections; and an inspection and discussion of the characteristic differences in animal dentition. The large odontological museum, the gift of the late Professor Ford, offers exceptional opportunities for this work.

In the *histological laboratory* the student not only acquires a knowledge of the principal structures and tissues of the animal body, but also becomes familiar with the manipulation and uses of the microscope.

In *chemistry* students are required to attend lectures on general chemistry, and also to take a course in analytical chemistry with special reference to those agents or secretions that concern their future needs. A course in analysis of saliva is optional.

In dental *materia medica and therapeutics* a special course of lectures embraces the history, pharmacy, pharmacology, and therapeutics of all drugs and remedies used in the treatment of diseases occurring in dental practice, and includes a discussion of pain obtundents, local and general anæsthetics, and prophylactic remedies.

In dental *pathology and surgery* a course of lectures embraces a discussion of the various diseases which affect the teeth and mouth, and their etiology and treatment. Special attention is given to diseases which pertain peculiarly to the practice of dentistry. Illustrative cases are shown and operated on in the presence of the class. All instruments, appliances, and methods that are of interest or value in this connection are exhibited and discussed.

A course of lectures on clinical *oral surgery* embraces a consideration of diseases of the mouth and associated parts that are of special interest to the dentist, but which lie more within the province of the medical surgeon for treatment. Illustrative cases are exhibited and discussed, and operations performed before the class.

In *operative dentistry* the instruction is both didactic and practical. In the didactic course a full presentation of approved methods, appliances, and and material used in filling teeth is given, together with the principles which form the basis of practice. This instruction is supplemented by practical instruction in the clinical operating room, which is under the personal supervision of the professor of operative and clinical dentistry and his assistants. Here each student is required to spend fifteen hours a week at the chair, operating for patients, and in this way confirming the principles taught and obtaining such manipulative training as will result in desirable prepration for skilful practice.

In *prosthetic dentistry* the instruction is both didactic and practical. In the lectures the principles involved in the construction and application of artificial dentures, crowns and bridges, regulating devices, and continuous gum and cleft palate work are fully discussed, and such methods as have proved valuable and worthy are advocated. In the practical department each student in the second year has opportunity and is required to construct and adapt to the mouth practical dentures for the restoration of lost dental organs.

The instruction in dental mechanism embraces experimental construction of the various artificial dentures used to restore lost dental organs. Twenty-five hours a week in the first year are devoted to this work. It consists of taking impressions, making plaster models from impressions, making dies, swedging plates, grinding and adjusting teeth, soldering and finishing, vulcanizing and finishing plates, pouring and finishing cast metal, celluloid, and continuous gum plates, and constructing various styles of crowns, bridges, and regulating devices, with such instruction as will familiarize the student with the most approved methods of doing such work. The junior class devotes one hundred and twenty hours to operative technique, in which sections of teeth are made and studied, and cavities are formed in teeth outside of the mouth and filled with cement, guttapercha, tin-amalgam, and gold.

EXAMINATIONS.

All students of the first and second years are obliged to pass examinations on all the required branches of their respective courses before leaving the college at the end of the year. These examinations are held at the close of each semester, and no student who has failed to pass two of the required branches in his course, is admitted to an advanced class during the first semester of the following year. No standing is given or certificate issued to any one who has failed to pass any of these examinations. Certificates of time are given for the actual period of attendance only.

REQUIREME[illegible] GRADUATION.

To be admitted to [illegible] of [illegible] Surgery, the candidate must [illegible] good moral character, m[illegible]stry, and have passed all the examinations required in his course. Unless admitted to advanced standing, he must have attended three full years in this college. It is recommended that he attend these consecutively.

Every candidate is required to write from time to time upon the various branches of his course, and may at the discretion of the Faculty be required to prepare a thesis upon some assigned topic; he must present for inspection practical operations performed by himself in this college, and give satisfactory evidence of his skill and ability as a practitioner.

GRADUATE COURSE.

The purpose of the graduate course is to meet the requests of a continually increasing number of students for further opportunity to pursue the scientific branches of the regular college curriculum, and also to meet an often expressed wish on the part of practitioners to pursue some special scientific investigation, which has been entered upon at home, with limited resources in the way of books of reference, laboratory facilities, and apparatus, and without the aid of instructors or advisers in associated sciences.

The graduate course is open only to graduates of this college, who have made marked records in their undergraduate work, and to graduates of this and other colleges who have had at least two years of continuous practice since graduation, had who have published original articles of scientific value showing a capacity on their part for continuing such work with credit.

The course of study is independent of, and additional to, the regular undergraduate work, and embraces only such topics as will aid in training men to carry on scientific researches in subjects associated with practical dentistry, or with dentistry in its scientific aspect. As at present arranged, the work in the first semester deals principally with materia medica; and in the second with pathology, according to the following schedule:

FIRST SEMESTER.

Subjects.	*Hours.*
Laboratory work in Chemistry (general and organic),	100
Laboratory work in Physiology, or in Materia Medica,	70
Original research on some dental remedy,	200

SECOND SEMESTER.

Subjects.	*Hours.*
Laboratory work in Histology,	70
Laboratory work in Bacteriology,	120
Original research on some dental disease,	200

In addition to the foregoing, each student must take at least one of the following elective studies:—general pathology, electrotherapeutics, quantitative chemical analysis, physiological chemistry, pharmacognosy, salivary analysis, general biology, dental metallurgy, or must prepare a thesis on the original research of either the first or the second semester.

The time required to complete the course prescribed for the advanced degree depends upon the diligence and capacity of the student, but at least a year's work is required in all cases.

Graduate students are required to pay the same annual fee as undergraduates, and those who have not previously been matriculated in this University are also required to pay the usual matriculation fee. The expenses of the laboratory courses vary according to the character of the work taken.

The degree of Doctor of Dental Science (D.D.Sc.) is conferred only upon graduate students who complete the prescribed course as outlined above, or a course embracing an equivalent amount of scientific work.

FACILITIES FOR INSTRUCTION.

For general information relating to the University libraries, museums, laboratories, hospitals, and gymnasiums, see pages 23 to 36 and 176 to 183.

Among the facilities of special interest to students of dentistry the following may be mentioned.

DENTAL MUSEUM.

The dental museum is supplied with a large number of anatomical, physiological, pathological, and histological preparations, including a series illustrating dentition from infancy to the completion of the process in the adult, and the normal changes through life to old age, and also illustrative of the dental and osseous tissues. Preparations, natural and artificial, greatly facilitate the study of the nervous and vascular systems. The design is to make every practicable appliance in this direction available.

The late Professor Ford contributed his entire collection of crania and odontological specimens to this museum, making it one of the best of its kind in this country. Additions to this collection are desired, and gifts of material illustrating comparative odontology and typical or abnormal human teeth, will be gratefully received.

DENTAL LIBRARY.

A library of dental science, containing almost every known work on this specialty, including an almost complete file of every dental journal published, is shelved in the dental building, where it is accessible to all students. A finely appointed reading room is connected with the library. Thirteen dental journals are regularly received.

LABORATORY OF MECHANICAL DENTISTRY.

This laboratory contains charcoal and coke furnaces, soldering table, rolling mill, and lathes; appliances for the various manipulations of prosthetic dentistry, such as the construction of artificial dentures in gold, continuous gum, silver, aluminum, and other bases; appliances for the regulation of teeth and for the mechanical treatment of oral deformities; and facilities for the manufacture of instruments. The laboratory has accommodations for two hundred students at a time. Particular attention is given to the manipulation and management of the precious metals with reference to their use for dental purposes.

Each student is furnished a bench containing a drawer and cupboard with lock and key, to contain the instruments that he is obliged to furnish for the prosecution of his work. If a student has any of these instruments it would be well to bring them; but it is more desirable to defer purchasing until the advice of the instructor in the college has been secured, as it is desirable that a complete and uniform outfit should be in the possession of each student. This outfit costs about fifty dollars, and if taken care of will be a permanent investment, as the tools will all be necessary and useful in practice. These tools must be purchased at the beginning of the course, as they are required during the first as well as during the succeeding years.

DENTAL OPERATING ROOMS.

The operating rooms are large, well lighted, heated, and ventilated. The main room contains sixty operating chairs, with an extension bracket and movable table with drawers for instruments for each chair. Other rooms contain chairs and apparatus for the administration of anæsthetics, for the extraction of teeth, and for other purposes. Each student is required to supply himself with a dental engine and a full set of operating instruments; these must be purchased with the advice of the instructor, and will cost about one hundred dollars. Like the laboratory tools, they will be necessary to begin practice, and if carefully used will last many years; consequently care should be exercised in their purchase. They need not be purchased until the third year.

COURSES IN OTHER DEPARTMENTS.

Those who can command the time may also avail themselves of numerous lectures, or pursue elective studies, in the Department of Literature, Science, and the Arts (page 42); or may attend special lectures in the Department of Medicine and Surgery (page 168), such as those on gynæcology and the diseases of children, or on other subjects that are important to the practicing dentist.

TEXT-BOOKS.

First Year.—*Anatomy.*—Morris; Gray. *General Chemistry.*—Freer; Remsen. *Organic Chemistry.*—Perkins-Kipping; Bernthsen. *Histology.*—Piersol; Schäfer; Klein. *Medical Dictionary.*—Gould; Thomas. *Prosthetic Dentistry.*—Essig; Richardson. *Crown and Bridge Work.*—Evans.

Second Year.—*Physiology.*—Howell; Foster; Martin. *Bacteriology.*—Fränkel; Sternberg; Vaughan and Novy. *Qualitative Chemistry.*—Prescott. *Dental Metallurgy.*—Hodgen; Essig. *Dental Anatomy.*—Black; Tomes.

Third Year.—*General Pathology.*—Ziegler; Green. *Dental Pathology.*—Marshall; Bödecker; Wedl. *Oral Surgery.*—Warren; Garretson; Tomes. *Operative Dentistry.*—Harris; Taft. *Orthodontia.*—Talbot; Guilford. *Dental Medicine.*—Gorgas; Wood; Potter.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars;* for all others *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Laboratory Expenses.—*Chemical Laboratory.*—Students are required to pay for the materials and apparatus consumed by them. The average expense for the required course is about *ten dollars. Histological Laboratory.*—A charge of *seven dollars* is made for material used in this laboratory. *Anatomical Laboratory.*—A charge of *ten dollars* is made for material used in dissecting.

Incidental Expenses.—A charge of *three dollars* a year is made against each student to cover the cost of supplies and equipment provided by the University. The expenses for incidentals, teeth, rubber, and other material needed in the technical courses, but not supplied by the University, are about *fifteen dollars.*

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*The Matriculation Fee and the Annual Fee must be paid in advance, and no seat will be assigned to a student until after such payment. No portion of these fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

The average total expenses of a student of dentistry, including University fees, board, books, etc., for the college year of nine months, are three hundred dollars, and upward, depending on individual habits and tastes. The cost of instruments and tools, amounting to about one hundred and fifty dollars for the entire course of three years, is not included in the above estimate, for the reason that it is not properly a college expenditure, the tools being available and necessary in future practice.

To avoid embarrassment, new students should come prepared to spend during the first week about $135, if residents of Michigan, or $160, if not residents of Michigan, for University fees, books, and tools.

Additional information in regard to expenses may be found on pages 39 to 41.

Summer School in the Department of Literature, Science, and the Arts.*

A special Announcement of the Summer School, containing further particulars than are here given in regard to the courses of instruction, etc., is published annually. Copies of this Announcement can be had by addressing Mr. James H. Wade, Secretary of the University.

The Summer School is under the general supervision of an Executive Committee chosen from the Faculty of the Department of Literature, Science, and the Arts. For the year 1899, Assistant Professor JOHN O. REED is Chairman, and Dr. ERNST H. MENSEL is Secretary of the Executive Committee.

The School opens on the first Wednesday after Commencement and continues for six weeks (June 28–August 10, 1899).

GENERAL REGULATIONS.

1. Before beginning work in the school, students are required to register with the chairman of the executive committee at the office of the Dean of the Department of Literature, Science, and the Arts, and to pay their fees to the Treasurer of the University. Laboratory fees, where required, are also to be paid to the Treasurer.

2. Each full course of study, except when otherwise specified, comprises thirty lessons, one hour each day for five days in the week

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* For the Summer School of Law, see page 200.

3. The charges for tuition for the session are as follows:

One Course	$15.00
Two Courses taken by the same student	25.00
Three Courses taken by the same student	30.00

The maximum tuition fee is $30.00. For laboratory courses the expense varies with the character of the work done and the economy of the student.

4. Credit toward graduation in the Department of Literature, Science, and the Arts, may be given to students regularly enrolled in the Summer School, subject to the following rules and regulations:

(a) No credit is given save for work that is similar in kind to courses that are regularly offered in that Department.

(b) Credit is given only for full courses of five hours a week for the session, or multiples thereof. Exceptions to this rule may be made in the case of laboratory courses.

(c) The credit to be given for a full course of five hours a week is *two hours*,* and for multiple courses in proportion. In some courses credit for *three hours* or *five hours* may be given for proportional time and work.

(d) No student can receive more than *six hours* of credit for work done in any one session of the Summer School.

(e) All credits must be reported by the several instructors to the secretary of the executive committee immediately on the close of the annual session.

COURSES OF INSTRUCTION.

The courses of instruction are arranged to meet the wants of several classes of students. It is supposed that a considerable proportion of the students in attendance will be teachers in high schools or academies who desire to enlarge their preparation for their special work. Students who wish to review studies preparatory to presenting themselves for examination for admission to college or university will find courses directly adapted to meet their wants. Students regularly matriculated in the University will also find courses suited to their needs.

In the description of courses given below, the terms *two hours*, *four hours*, *six hours*, etc., indicate the amount of credit to be given for the course. When no mention of hours is made it is to be understood that the course is not entitled to credit.

The courses offered for the summer of 1899, with the names of the instructors (so far as arranged at the time these pages go to press), are as follows:

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* For explanation of the term Hour of Credit, see page 59.

GREEK.

1. Preparatory Greek (Double Course). Dr. DENNISON.
2. Rapid Reading of Easy Greek. Selections from Herodotus. *Two hours.* Dr. DENNISON.

LATIN.

1. Preparatory Latin:
    - (a) Latin Writing. Dr. DENNISON.
    - (b) Cicero. Interpretation of selected Orations or Letters. Dr. GRANRUD.
    - (c) Virgil's Aeneid. Professor ROLFE.
2. Rapid Reading of Selections from the best Latin authors, with studies in Roman private life. *Two hours.* Dr. GRANRUD.
3. Introduction to Roman Political Institutions. Lectures. *Two hours.* Dr. GRANRUD.
4. Teachers' Course. Lectures on Latin grammar and style. Exercises in advanced Latin writing. *Two hours.* Professor ROLFE.

FRENCH.

1. Beginners' Course. Dr. EFFINGER.
2. Classic Dramas. Corneille, Molière, Racine. *Two hours.* Dr. EFFINGER.
3. Of the two courses, 3*a* and 3*b*, the one for which the greater number of applications is made will be given.
    - 3*a*. Intermediate Course in Composition. *Two hours.* Dr. EFFINGER.
    - 3*b*. Rapid Reading. Intended to help the student *read* rather than *translate.* *Two hours.* Dr. EFFINGER.

GERMAN.

Courses 2, 3, and 4 are intended especially for teachers and may well be taken together.

1. Modern Prose. *Two hours.* Dr. MENSEL.
2. German Composition. Advanced course. *Two hours.* Dr. MENSEL.
3. Methods of Teaching Modern Foreign Languages. *Two hours.* Professor HENCH.
4. Elementary Phonetics and Modern German Sounds. *Two hours.* Professor HENCH.

ENGLISH AND RHETORIC.

1. Outline History of English Literature. *Two hours.* Mr. STRAUSS.
2. Paragraph Writing. *Two hours.* Mr. STRAUSS.
3. Theme Writing. *Two hours.* Mr. STRAUSS.

4. Analysis of English Prose. *Two hours.* Professor SCOTT.
5. Teachers' Course. Methods of teaching rhetoric and English composition. *Two hours.* Professor SCOTT.

ELOCUTION AND ORATORY.

1. Exereises in vocal culture and action; elements of quality and force, pitch and time. *Two hours.* Professor TRUEBLOOD.
2. Shakespearian Reading. Two plays. *Two hours.* Professor TRUEBLOOD.

AMERICAN HISTORY.

1. American Colonial History. *Two hours.* Professor McLAUGHLIN.
2. Problems in the political and constitutional history of the United States, 1775–1865. *Two hours.* Professor McLAUGHLIN.

PHILOSOPHY.

1. Introduction to General Psychology. *Two hours.* Dr. PILLSBURY.
2. Introductory Laboratory Course. *Two hours.* Dr. PILLSBURY.

POLITICAL ECONOMY.

1. Elements of Political Economy. Text-book and lectures. *Two hours.* Professor F. M. TAYLOR.
2. Money and Banking. Text-book and lectures. *Two hours.* Professor F. M. TAYLOR.

MATHEMATICS.

1. Geometry for Admission. Text-book: Beman and Smith's Plane and Solid Geometry. Mr. HALL.
2. Algebra for Admission. Text-book: Hall and Knight's Elementary Algebra, revised by Sevenoak. Mr. HALL.
3. Trigonometry. Equivalent to Course *1b* of the first semester's work (see page 88). *Two hours.* Mr. HALL.
4. Algebra. *Two hours.* Assistant Professor MARKLEY.
5. Analytic Geometry. *Two hours.* Assistant Professor MARKLEY.
6. Geometry and Algebra for Teachers. *Two hours.* Professor BEMAN.
7. Calculus. *Two hours.* Professor BEMAN.
8. Differential Equations. Text-book: Johnson's Differential Equations *Two hours.* Professor BEMAN.

Of Courses 7 and 8, that one will be given for which there is the greater number of applications.

PHYSICS.

1. Physics for Admission to the University. Dr. GUTHE.
2. Teachers' Course in General Physics. Lectures and recitations. Assistant Professor REED.

3. Laboratory Physics for Teachers. *Two* or *three hours.* Dr. GUTHE.
4. Graduate Work in Physics. Laboratory work and reading adapted for students competent to enroll for an advanced degree. Assistant Professor REED.

CHEMISTRY.

Students will be accorded the full privileges of the laboratories each day from 8 to 12 A. M. and from 2 to 5 P. M. The laboratory expenses vary from $1.00 to $1.75 a week, proportionately to the time spent, the course chosen, and the economy used.

1. General Inorganic Chemistry. Lectures and recitations. *Four hours.* Mr. HIGLEY.
2. Laboratory Work in General Inorganic Chemistry. *Three, four, five,* or *six hours,* as arranged with instructor. Mr. LICHTY.
3. Qualitative Analysis. Laboratory work and recitations. *Six hours.* Mr. BROWN.
4. Beginning Quantitative Analysis. Lectures and recitations. *Four* to *six hours* as arranged with instructor. Mr. A. CAMPBELL.
5. Organic Chemistry. Lectures and recitations. *Two* to *six hours.* as arranged with instructor. Mr. A. CAMPBELL.

BACTERIOLOGY AND PHYSIOLOGICAL CHEMISTRY.

1. Physiological Chemistry. *Six hours.* Mr. BLISS.
2. Bacteriology. *Six hours.* Mr. WAITE.

BOTANY.

1. General Morphology and Physiology of Flowering Plants. Equivalent to the botany required for admission to the University. Dr. POLLOCK.
2. Liverworts, Mosses, and Ferns. Lectures and laboratory work. *Two hours.* Dr. POLLOCK.
3. Plant Physiology. Lectures and laboratory work. *Two hours.* Dr. POLLOCK.

ZOOLOGY.

1. General Zoology. A study of typical species of animals, with reference to structure, function, development, and relationship. Laboratory work, lectures, and recitations. *Three hours.* Professor MUNSON.

   Course 1 is the equivalent of the zoological portion of Course
   general biology (page 101).
2. Teachers' Course. Work on local fauna, in field and labor
   and with text-book. *Two hours.* Professor MUNSON.

3. Teachers' Course. Technique. Methods of collecting, preserving, and preparing for microscopic study the forms most commonly used in laboratory work. *One hour.* Professor MUNSON.

DRAWING.

1. Freehand Drawing. Pen and Ink; Pencil Work; Sketching. *Three hours.* Mr. GOULDING.
2. Freehand Lettering. *Two hours.* Mr. GOULDING.

MECHANICAL ENGINEERING.

1. Principles of Mechanism. *Three hours.* Mr. GOULDING.

List of Graduates of 1898.[*]

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

BACHELOR OF LETTERS.

Mary Irene Amidon,
Julia Morehouse Angell,
Lois LeBaron Avery,
Anna Mary Baker,
Eva Bothe,
Clara Louisa Botsford,
Gertrude Adele Boynton,
Bert John Bradner,
Bertha Brainerd,
Katherine Holland Brown,
Charles Ward Burton,
Harriet Edwina Bushnell,
John Edward Butler,
George Frank Clukey,
Frank Elmer Creasey,
Mary Elise DeVeny,
Fred Leslie Divine,
Archibald Alexander Forshee,
Jacob Lincoln Freud,
Julia Emma Gettemy,
Jessie Scott Gregg,
Grace Asenath Hendrickson,
Dorsey Reno Hoppe,
Arthur Miller Hovey,
†Hannah Emily Keith,
Charlotte Elizabeth Kennedy,
Louis Alvin Kreis,
John Edward Lawless,
Herbert McCutcheon,
Helena Marquardt,
Vincent Cuthbert Mooney,
Alice Nash,
Albert Oscar Olson,
Henry Hall Parke,
John Marshall Parker,
Margaret Van Ness Phelps,
Florence Helen Pomeroy,
Charles Fish Rathfon,
Nellie Eveline Rickert,
Pearl Osbearn Robinson,
Louis Dow Scisco, B.S., *Cornell University*,
Bernath Pardee Sherwood,
Charles Simons,
Jeannette Smith,
Louise Burnett Stickney,
George Chickering Stone,
Don David Sturgis,
†John Frederick Thomas,
Marvin Walter Turner,
Lawrence Hoffman van den Berg,
Paul Warren Voorhies,
Winnie Caroline Warning,
Harriet M. Welchli,

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[*] The List of Graduates contains the names of all persons on whom conferred during the year 1898. A dagger (†) indicates that the degre at some other time than Commencement.

Charles Grosvenor White,
† Henry Elmore Wilkinson,
Ella Goodenow Willcox,
Ida Ethelwyn Wing,
Bertha Helen Wise. 58

BACHELOR OF SCIENCE.

(IN BIOLOGY.)

† John Auer,
Augustus Ernest Guenther,
George David Kerr Hendry,
Fritz Carleton Hyde,
Carl Sears Kennedy,
Burton Edward Livingston,
George Bruckner Lowrie,
Paul Monroe Pilcher,
Russell Sturgis Rowland,
Charles Ernest Tompkins. 10

BACHELOR OF SCIENCE.

(IN CHEMISTRY.)

David Lake Davoll, Jr., Ph.C.,
William Everett Hartman,
William Hugh Hess,
James Leonard Mee,
† Charles Jacob Rice,
† Karl Krenkell Stevens,
Arthur Roy Wren. 7

BACHELOR OF SCIENCE.

Laura Baker Broomall,
Julian Eugene Buchanan,
Ralph Benedict Dean,
Howard Edwin Enders, B.S., *Lebanon Valley College*,
Henry William Hess,
Frank Heady Lamb,
Mabel Gertrude Loder,
Ralph Eells Newton,
Albert Noordewier,
John Leon Parker,
Nathan S. Potter, Jr.,
Cora Adell Robison,
Herman Russell,
Edmund Schoetzow, B.S., *Michigan Agricultural College*,
Ida Ellen Shaw,
Charles Stevens Smith,
Derk Stegenga,
Herbert Philip Stellwagen,
Andrew Lester Swinton,
Dic Hector Trowbridge,
† Abraham Van Zwaluwenburg, Ph.C.,
James Gerrit Van Zwaluwenburg,
Charles Sherman Weaver,
William Mackey Wherry,
† Arlo Ray Williams. 25

BACHELOR OF PHILOSOPHY.

Frederick Clark Averill,
Caroline Bary,
Sophie Estelle Batchelder,
Alice May Boutell,
Delia Edith Bullock,
William Ransom Carpenter,
Kittie Anna Clarke,
Byron Henry Coon,
Adriel Alanson Crawford,
Albertus Darnell,
Julian George Dickinson,
Charles Jacob Dovel,
Elizabeth Webster Eaton,
Charles Henry Farrell,

Fannie Jessie Felver,
Emilie Agnes Flintermann,
Harriet Louise George,
Grace Fanny Goodman,
Charles LeRoy Harlan,
Henry Thomas Heald,
Rose May Cranston Hess,
Helen Grace Hunter,
Helen Amelia Irland,
Ann Eliza Kimball,
Linus Edwin Kimmel,
Thad Johnson Knapp,
Robert Young Larned,
Carl Emil McAlvay,
Susanne Onins Macauley,
Jessie Marion Mack,
Robert Parker McMaster,
George Franklin Mead,
Fannie Harvey Merrill,
Minnie May Moore,
Warren Pearl Morrill,
Earl Herbert Morris,
Oscar Reiff Myers,
Edla Maud Niles,
Schuyler Seager Olds, Jr.,
Josephine Perry Powell,
Flora Prowdley,
Matthew Quinlan,
Katherine Reed,
Florence Loring Richards,
†Clarence D. Rowley,
William Sanger,
Christabel Hortense Sawyer,
Theron Malcolm Sawyer,
George Curtis Shirts,
Flora Ann Sigel,
Angus Smith,
Sara Stephan,
Kathrine Mitchell Stewart,
Oscar Strauss,
Joseph Morris Thomas,
Nellie May Turner,
Robert Brainard Vaile,
John Clinton Watson,
Frederick Henry Weng,
Mary Estelle Young. 60

BACHELOR OF ARTS.

†George Henry Allen,
William Benton Arbaugh, A.B.,
Scio College,
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Theodore Bacmeister,
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Charles William Burrows,
Allan Campbell,
Edward Francis Carey,
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Clarence Robert Hanes,
Hanna Hansen,
Harriette Ellen Harlan,
Matilda Agnes Harrington,
Julian Hartwell Harris,
Minnie Mae Hathaway,
Harry Helfm [illegible]
Mary Caroli [illegible]
Walter [illegible]
F[illegible]
[illegible]

Stuart Edwin Knappen,
Emma Frances Knight,
Stephen Herbert Langdon,
Erie Maude Layton,
Henry Kimball Loud,
Lewis Wilson McCandless,
Emily Mabel McCune,
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Samuel Hills Warriner,
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Herbert William Whitten,
Montie Lyons Wiers,
Nina Allene Wilber,
Elizabeth Lee Wilcox,
Thomas Robert Woodrow,
Blanche Martha Young. 80

MASTER OF LETTERS.

Annie Louise Bacorn, B.L.,
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MASTER OF SCIENCE.

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Hugh Elmer Ward, B.S. *Mich. Agricultural College.* 11

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Florence Mabelle Halleck, Ph.B.,
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Jeremiah Simeon Young, A.M., *Kansas College.* 13

DOCTOR OF PHILOSOPHY.

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Riotaro Kodama, *Doshisha College,*
Edwin Carl Roedder, A.M.,
Arletta Leora Warren, Ph.B., *Univ. of Wooster.* 6—277

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Roy Wilcox Brown,
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Leonard Porter Coulter,
John Shepherd Cowgill,
Faust Franklin Crampton,
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Harry Eli Harrington,
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William Jonathan Marsh,
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Otto Pruessman,
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Clarence William Squier,
Robert Steck,
Fay Woodmansee. 23

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Fred May Green,
Percy Melvin Holdsworth,

Edward Potter Marsh,
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Joseph Herman Pettersch,
Claudius Horatio Thomas,
Albert Andrew Weber,
Morey Aldrich Wood. 14

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Isaac DeYoung,
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Francis Fair Gillen,
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Edward Hawks Ravenscroft,
Clarence Webster Raynor,
Herbert Lafayette Russell,
Frank Noble Savage,
Lloyd Bown Smith,
John Frederick Streib,
Howard Platt Treadway,
Sutton Van Pelt, 19

MASTER OF SCIENCE.

John Harold Montgomery, B.S.,
Clarence George Wrentmore, B.S. 2

CIVIL ENGINEER.

Will Hazen Boughton, B.S.,
Minott Eugene Porter, B.S. 2—60

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Norton Dusenbury Coons,
Alexander Corpron,
John Martin Craig,
Kate Louise Crawford,
Samuel Conway Crow,
Thomas Levi Dagg,
Lydia Maria Adams DeWitt,
Hugh William Dicken,
Fred Strayer Diefendorf,
Victor Charles Doherty,
Fannie Almara Dunn,
Arthur Ernest Gale,
Henry R [illegible] Gammon, A.B.,
Claren [illegible] ood,
Newt [illegible]
Fred [illegible]
Coryd [illegible]
Rhoda [illegible]
Robert S [illegible]
William S. [illegible]

Andreas Johannes,
Joseph Alphonsis Kelly,
Mark Stevens Knapp, B.S.,
Will Mac Lake,
Solomon S. Lee,
Wilmer Sanford Lehman,
William James Little, A.B., *Hastings College,*
George Munroe Livingston,
Nelson Ferguson McClinton,
Jesse Krekore Marden, A.B., *Dartmouth College,*
William August Mogk, A.B.,
Joseph Robert Mountain,
Mary Josephine Nachtrieb,
May Fonda Nadeau,
Horace Newhart, A.B., *Dartmouth College,*
George Henry Norris,
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James Willis Parker, A.B.,
Olive Grace Perry,
Ernest Reginald Pike,
Arthur David Pollock,
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Annie Margaret Stevens,
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† William Henry Tefft,
Sharon John Thoms,
† Samuel Davies Tobey, as of the Class of 1860,
Christian van der Veen,
Thomas Van Urk,
Ernest Maxwell Vardon,
John Oloff von Zellen,
Walter Miller Warren,
Mary Wetmore,
Mary Blanche White,
Charles Henry Williams, Ph.B., *Adrian College,* Ph.C.,
Robert Dwight Wilson,
Leroy John Wisman,
Walter John Wright,
Alois Lawrence Ziliak,
Joseph Edward Ziliak. 71

DEPARTMENT OF LAW.

BACHELOR OF LAWS.

Merrie Hoover Abbott,
Charles Wallace Adams, A.M.,
Earl Belmont Adams,
John Quincy Adams, B.L.,
Harvey Francis Ake, B.S., *Mount Union College,*
Paul Young Albright,
Frank Dale Allen,
Louis Carl Anderson,
Mark Seeley Andrews,
Duane Darrow Arnold,
Alatau Leonard Charles Atkinson,
Elisha Avery Baker,
George Franklin Barr,
Charles Robb Barrow, B.S., *National Normal University,*
Michael John Barry,
Edwin Southworth Bartlett,
George Herbert Batcheler,
James J. Bell, Jr.,
Emanuel Teichner Berger, LL.B., *Detroit College of Law,*
William Romine Blackburn,
Jacob Moore Blake,
Ozro Seth Blanchard,
Peter Jacob Blosser,

Henry Herman Bodenstab,
Clayton Sweet Boice,
Ralph Raymond Bowdle,
James Roy Boyd,
Samuel George Braudy,
George Clement Brown, A.B.,
Northern Indiana Nor. Sch.,
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Edmund David Burke,
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Francis Marion Byam,
†Colin Percy Campbell,
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Charles Austin Carter,
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James Franklin Charles,
James Ferson Clark,
William John Collum,
Augustine Francis Connolly,
Charles Goldsmith Cook, A.B.,
Arthur Melvin Cox, A.B., *State College of Kentucky*,
Arnold Lyman Davis, A.B.,
University of South Dakota,
Hugo Edgar Dieterichs,
Mortimer Adolph Dittenhoefer,
James Sylvester Doyle, A.B., *Detroit College*, LL.B., *Detroit College of Law*,
Charles Engelhard,
Joseph Hyrum Erickson,
A. Burdette Evans,
William Henry Feindt, Jr.,
George Nicholas Fell,
George Calvin Finfrock,
George Forest Firestone,
Frederick Fischer, B.S., *Western Normal College*,
†Neville Charles Fisher, A.M.,
Georgetown College,
Daniel Webster Fishell,
Louis Jesse Fletcher,
Christopher C. Fouch, Jr.,
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Edwin Howard Gordon, A.B.,
Macalister College,
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Boone Gross,
Eugene Edgar Grumbine,
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Ohio Normal University,
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Samuel Brush Haskin, A.M.,
Baker University,
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George Percy McCallum,
William Sterling McCluskey,
James Gulliford McConkey,
Hugh Lawson McElderry, A.B., *Emery and Henry College,*
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Gifford Brown McKay,
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William Henry Martin,
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Thomas Gilbert Mays,
Fred Winchester Mears, A.B., *Brown University,*
James Alexander Melville,
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Conrad Miller,
Craig Carlton Miller, A.B., *Williams College,*
Wade Millis,
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August John Waffen,
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George Henry Wilkes,
John Llewellyn Willoughby,
Ralph Emerson Wisner,
Orestes Humphrey Wright,
Wesley John Wuerfel,
Bayard Wyman,
Edward William Young. 204

MASTER OF LAWS.

Clarence William Aird, LL.B., *Detroit College of Law*, LL.B.,
Thomas Albert Berkebile, LL.B.,
Harry Yershelle Freedman, LL.B., *Oregon Univ.*, LL.B.,
Bertran Edward Nussbaum, LL.B. 4—208

SCHOOL OF PHARMACY.

PHARMACEUTICAL CHEMIST.

Carl J. Biehl,
Walter Henry Blome,
John Asa Coram,
Aimée Coulter,
Harry Edwin Douglas,
Charles Dwight Goff,
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Sam Herman Zimmerman. 19

BACHELOR OF SCIENCE.

(IN PHARMACY.)

Clarence Henry Baum, Ph.C.,
Abraham Van Zwaluwenburg, Ph.C. 2—21

HOMŒOPATHIC MEDICAL COLLEGE.

DOCTOR OF MEDICINE.

John Newton Babcock,
Joseph Harris Ball,
Raymond Alfred Clifford,
Ernest Bigelow Maynard,
Charles Augustus Montague,
Charles Armand Rabethge, M.D.,
Jefferson Medical College,
Clarence Augustus Schimansky,
Samuel Porter Tuttle,
Marion Wells. 9

COLLEGE OF DENTAL SURGERY.

DOCTOR OF DENTAL SURGERY.

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Wesley Alonzo Chamberlain,
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James Weston Minerd,
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Daniel Michael Thompson,
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Thomas Budd Van Horne,
Harry Melville Viel,
Benjamin Frankl[illegible] [illegible]gh,
Philip Erne[illegible] W[illegible]
Oliver [illegible]
B[illegible]

Lewis [illegible]

DOCTOR OF DENTAL SCIENCE.

Thomas Edward Carmody, D.D.S., Dessie Brown Robertson, D.D.S. 2—57

HONORARY DEGREES.

DOCTOR OF MEDICINE,

OSCAR RUSSELL LONG,
Homœopathic Physician; Superintendent of the Michigan Asylum for Dangerous and Criminal Insane. 1

MASTER OF ARTS.

STANLEY WATERLOO,
Former Student in the University; Journalist. 1

DOCTOR OF LAWS.

WILLIAM RUFUS DAY,
Graduate of the University in the Class of 1870; Secretary of State.

ABRAHAM JACOBI,
Professor of the Diseases of Children in the New York College of Physicians and Surgeons. 2–4

Total number of degrees conferred, - - - - 707

FACULTIES AND STUDENTS.*

Department of Literature, Science, and the Arts.

FACULTY.

JAMES B. ANGELL, LL.D., *President.*
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ISRAEL C. RUSSELL, C.E., LL.D.
WARREN P. LOMBARD, A.B., M.D.
JACOB E. REIGHARD, Ph.B.

---

* A dagger (†) preceding a student's name indicates that he pursues
whole or a part of the year, in more than one department of the Univer

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JOHN C. ROLFE, PH.D.
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ROBERT M. WENLEY, SC.D., D.PHIL.
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GEORGE HEMPL, PH.D.
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ARCHIBALD CAMPBELL, PH.M.
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CARL V. TOWER, PH.D.
JOHN E. GRANRUD, PH.D.

Other Instructors and Assistants.

ALICE L. HUNT.
HERMAN E. BROWN, B.S.
ARTHUR H. BENEFIEL.
JULIA M. BUTLER, M.S.
ERNEST CLEVERDON.
BERT W. PEET, M.S.
CARL SUNDSTROM.
SAMUEL A. JEFFERS, A.M.
GEORGE D. HADZSITS, A.M.
JAMES W. STURGIS, A.M.
FRANK S. BACHELDER.
NORMAN K. McINNIS, A
ROBERT T. YOUNG, B.

STUDENTS.*

HOLDER OF FELLOWSHIP.

NAME.	RESIDENCE.
Duane Reed Stuart, A.B., 1896, *Holder of the Elisha Jones Classical Fellowship,* Greek; Latin; Classical Archæology.	*Detroit.*

CANDIDATES FOR AN ADVANCED DEGREE AND OTHER RESIDENT GRADUATES.

NAME.	RESIDENCE.
George Henry Allen, A.B., 1898, History; Greek; Latin.	*Grand Rapids.*
Lewis Oliver Atherton, B.S., *Albion College,* 1895, Zoology; Experimental Morphology; Botany.	*Ovid.*
Martin Darrelle Atkins, A.B., 1886, Physics; Organic Chemistry; Mathematics.	*Lake Forest, Ill.*
Anna Mary Baker, B.L., 1898, American History; Rhetoric; Political Economy.	*Saint Louis, Mo.*
Edna Lenore Ballard, A.B., 1898,	*Ann Arbor.*
John Watson Beach, A.B., 1896, Latin; Greek; Philosophy.	*Lexington.*
Willis Thomas Bishop, B.S., *Olivet College,* 1893, American History; European History; Pedagogy.	*Dimondale.*
Merrill Jay Blanden, A.B., *Colgate University,* 1894, Latin; Greek; Pedagogy.	*Belleville, N. Y.*
Clara Louisa Botsford, B.L., 1898,	*Plainwell.*
Esther Braley, A.B., 1898,	*Saginaw, West Side.*
Albert E. Broene, A.B., *Kalamazoo College,* 1897, A.B., *University of Chicago,* 1898, Greek; Latin; German.	*Kalamazoo.*
Elizabeth Alma Campbell, Ph.B., 1891,	*Ann Arbor.*
Lewis Clinton Carson, A.B., 1892, A.B., *Harvard University,* 1893, History of Philosophy; Philosophy of Religion; Sociology.	*Detroit.*
James Edward Church, Jr., A.B., 1892, Latin; Greek; Comparative Philology.	*Reno, Nevada.*
Alfred LaRue Davenport, B.S., *Pomona College,* 1897, Physics; Chemistry; Mathematics.	*Pomona, Cal.*

---

* The principal subjects of study pursued by candidates for an advanced degree are indicated under their respective names; the subject first named being the major study.

Joseph Horace Drake, A.B., 1885, *Ann Arbor.*
History; Latin; Jurisprudence.

Charles Edmund Filkins, B.L., 1891, *Burton.*
English Literature; French; Pedagogy.

Clarence James Foreman, B.S., *Mich. Agr. Coll.*, 1894, M.S., *ibid.*, 1896, *Harbor Springs.*
Political Economy; Pedagogy; Sociology.

Colman Dudley Frank, Ph.B., 1897, *Toledo, O.*
French; German; Spanish.

Christian Frederick Gauss, A.B., 1898, *Ann Arbor.*
French; Spanish; Aesthetics.

Anna Bordwell Gelston, Ph.B., 1881, *Ann Arbor.*

Theresa Alvina Grube, B.L., 1896, *Ann Arbor.*
German Literature; German Philosophy; History.

George Depue Hadzsits, A.B., 1895, A.M., 1896, *Detroit.*
Greek; Latin; Classical Antiquities.

Walter David Hadzsits, A.B., 1898, *Detroit.*
Latin; Greek; Sanskrit.

Arthur Graham Hall, B.S., 1887, *Ann Arbor.*
Mathematics; Physics; Mechanics.

Parker Sedgwick Halleck, A.B., *Colorado College*, 1882, *Beaumont, Tex.*
Pedagogy; Organic Chemistry; General Chemistry.

William Henry Hawkes, A.B., 1887, *Ann Arbor.*
Physics; Mathematics; Chemistry.

Henry William Hess, B.S., 1898, *Toledo, O.*
Analytical Chemistry; Organic Chemistry; Economic Geology.

William Hugh Hess, B.S., 1898, *Woodstock.*
Organic Chemistry; Analytical Chemistry; Geology.

Frances Hinkley, B.S., 1890, *Benton Harbor.*
Organic Chemistry; Analytical Chemistry; International Law.

Mary Louisa Hinsdale, A.B., *Adelbert College*, 1885, A.M., 1890, *Ann Arbor.*
Pedagogy; Political Economy; American History.

Alice Sarah Hussey, A.B., *Vassar College*, 1894, *Rochester, N. Y.*
Rhetoric; Aesthetics; English Literature.

Paul Phelps Ingham, A.B., 1898, *Ann* [illegible]
Latin; Greek; Pedagogy.

Lambert Lincoln Jackson, A.B., 1897, [illegible]
Mathematics; Mechanics; Pedagogy.

Samuel Allen Jeffers, A.B., *Central* [illegible] *College*, 1892, A.M., 1897, [illegible]
Latin; Greek; Ancient Ethics.

John Black Johnston, Ph.B., 1893, *Ann Arbor.*
Zoology; Physiological Psychology; Physiology.

Hannah Emily Keith, B.L., 1898, *Terre Haute, Ind.*
American History; German; Political Economy.

Stephen Herbert Langdon, A.B., 1898, *Ida.*
Hebrew; Assyrian; Greek.

Eugene LaRowe, A.B., 1896, A.M., 1898, *Webberville.*
Latin; Ethics; Ancient Philosophy.

John Edward Lautner, B.L., 1895, M.L., 1896, *Ann Arbor.*
German Literature; German Philology; Philosophy.

Clement Charles Lemon, A.B., *Indiana University*, 1894, *La Grange, Mo.*
Botany; Vegetable Morphology; Zoology.

John Hancock McClellan, A.B., 1897, *Lexington, Ky.*
Vertebrate Zoology; Experimental Morphology; Physiology.

Norman King McInnis, A.B., 1898, *Saginaw.*
English Literature; Rhetoric; Aesthetics.

Yoshinaga Mikami, *Keio College*, 1897, *Kofu, Japan.*

Mary Lovicy Miner, Ph.B., 1882, *Ann Arbor.*
Latin; French; Roman Political Antiquities.

William August Mogk, A.B., 1897, M.D., 1898, *Ann Arbor.*
Experimental Pharmacology; Physiological Chemistry; Anatomy of Nervous System.

Paul Ingold Murrill, B.S., *State College of Kentucky*, 1895, M.S., *ibid.*, 1896, *Detroit.*
Organic Chemistry; General Chemistry; Bacteriology.

Oscar Reiff Myers, Ph.B., 1898, *New Enterprise, Pa.*
Rhetoric; Pedagogy; English Literature.

Henry Hall Parke, B.L., 1898, *Sycamore, Ill.*
Experimental Zoology; Vertebrate Zoology; Physiology.

Adelia Miner Randall, A.B., *Wellesley College*, 1895, *Alton, Ill.*
German; Pedagogy; English Literature.

Thomas Ernest Rankin, A.B., 1898, *Detroit.*
Rhetoric; Aesthetics; Sociology.

George Fletcher Richmond, B.S., *Michigan Agricultural College*, 1898, *Smyrna.*
General Chemistry; Analytical Chemistry; Physics.

Eugene Charles Rowe, A.B., *Olivet College*, 1897, *Monroe.*
Metaphysics; Pedagogy; Ethics.

Herman Russell, B.S., 1898, *Manistee.*
Organic Chemistry; Analytical Chemistry; Chemical Technology.

Margaret Anna Schaffner, A.B., *College of Emporia*, 1895, *Morganville, Kan.*
Political Economy; Sociology; American History.

Lillie Maria Shaw, A.B., 1884, Greek: Latin; Classical Archæology.	*Saginaw.*
Hudson Sheldon, A.B., 1891, General Chemistry; Physics; Mathematics.	*Corunna.*
Will Hittell Sherzer, B.S., 1889, M.S., 1890, Geology; Zoology; Palæontology.	*Ypsilanti.*
John Willis Slaughter, A.B., *Lombard University*, 1898, B.D., *ibid.*, 1898, Metaphysics; Psychology; French.	*Canfield, Ala.*
Evelyn Mary Smith, B.L., *Hillsdale College*, 1892, Latin; German; Rhetoric.	*Dowagiac.*
Shirley Wheeler Smith, B.L., 1897, English Literature; History; Rhetoric.	*Hastings.*
Carrie May Sperry, A.B., 1893, Latin; Greek; Hygiene.	*Ann Arbor.*
James Wellings Sturgis, A.B., 1896, A.M., 1897, Latin; Greek; Philosophy.	*Ann Arbor.*
Frank Stone Swift, B.S., *Olivet College*, 1897, General Chemistry; Physics; Mathematics.	*Olivet.*
Itsuo Tokunaga, *Doshisha College*, 1894, 1896, Political Economy; Finance; History.	*Yanagawa, Japan.*
Abraham Van Zwaluwenburg, Ph.C., 1887, B.S., 1898, B.S. (*Pharm.*), 1898, Organic Chemistry; Metallurgy; Botany.	*Ann Arbor.*
Frederick Henry Weng, Ph.B., 1898, German; Latin; English Philology.	*Marine City.*
Eugene Cyrus Woodruff, B.S., 1894, M.S., 1896, Physics; Mathematics; Organic Chemistry.	*Ludington.*
Loura Bayne Woodruff, A.B., 1895, Greek; Latin; German.	*Ann Arbor.*
Robert Thompson Young, B.S., *University of Pennsylvania*, 1896, Zoology; Botany; Geology.	*Philadelphia, Pa.*

The following students, enrolled in other departments, are also candidates for an advanced degree in the Department of Literature, Science, and the Arts. See page 129.

ENROLLED IN THE DEPARTMENT OF MEDICINE AND SURGERY.

NAME.	RESIDENCE.
Galen Greenfield Crozier, B.S., [illegible] Physiological Psychology; [illegible]	*Ann Arbor.*
Augustus Ernest [illegible], [illegible] Physiology [illegible]	[illegible]

CANDIDATES FOR A MASTER'S DEGREE, STUDYING IN ABSENTIA.

NAME.	RESIDENCE.
Mary Sophia Case, A.B., 1884, **British Philosophy; Political Philosophy; English Literature.**	*Wellesley, Mass.*
Henry Ormal Severance, A.B., 1897, **English Literature; Bibliography; Pedagogy.**	*Ann Arbor.*

UNDERGRADUATES.*

NAME.	DEGREE.	CREDIT.	RESIDENCE.
Mary Ella Abbey,	A.B.	106	*Lowell.*
Blanche Emma Abbott,	Ph.B.		*Ann Arbor.*
Florence Lavinia Abbott,	Ph.B.	109	*Ann Arbor.*
Emma Catherine Ackermann,	B.L.	90	*West Bay City.*
Cuthbert Clarke Adams,	Ph.B.	101	*Kenilworth, Ill.*
Mary Belle Adams,	A.B.	48	*Ann Arbor.*
Guy Henry Albright,	Ph.B.	88	*Lamar, Mo.*
Barnie Alexander,			*New Philadelphia, O.*
Lucius E. Allen,	B.S.		*Jamestown, N. Y.*
Mary Anderson,	B.L.	95	*Detroit.*
Frank Eugene Andrews,	B.S.	73	*Coldwater.*
Maude Elizabeth Aniba,			*Ann Arbor.*
Frank Jones Arbuckle,	B.L.	93	*Toledo, O.*
Effa A. Armstrong,	Ph.B.	24	*Chelsea.*
Henry Herbert Armstrong,	A.B.	30	*Ann Arbor.*
Marguerite Rose Ascher,	A.B.	100	*Saginaw, West Side.*
Arthur Frederick Ashbacker,	A.B.	92	*Ludington.*
Oliver Kossuth Atwood,	A.B.	58	*Saginaw.*
Eliza Jane Austin,	A.B.	95	*Detroit.*
Kittie Avery,	A.B.		*Port Huron.*
Waldo Allard Avery,	B.S.		*Detroit.*
Frank Merrill Ayer,	A.B.	23	*Grand Rapids.*
Ellen Botsford Bach,	A.B.	27	*Ann Arbor.*
Frank Staples Bachelder,	B.S.	85	*Saint Charles, Minn.*
Francis Miller Bacon, D.D.S.,	Ph.B.	69	*Saint Clair.*
Jennie Grace Badenhausen,	Ph.B.	30	*Decatur, Ill.*

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*The abbreviations in the column headed DEGREE indicate the lines of study the student is intending to complete, in accordance with the requirements for graduation as given on pages 114 to 117. Where no abbreviation is given, the student is pursuing miscellaneous studies without being registered as a candidate for a degree. The figures in the column headed CREDIT indicate the number of hours of work taken by candidates for degrees prior to the beginning of the current academic year, 1898–99, and completed without conditions, or credited to them on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. Compare page 115.

Mary Janet Bain,	A.B.		*Ann Arbor.*
Walter Gelvin Bain,			*Ann Arbor.*
Esther McConnell Baker,			*Barnard, Mo.*
Harry Ellsworth Baker,	B.S.	22	*Saint Louis, Mo.*
Irene Stoddard Baker,	A.B.		*Chicago, Ill.*
Louis Clarence Baldauf,	B.S.		*Oskaloosa, Ia.*
Ella May Baldwin,	Ph.B.		*Flint.*
George Edward Baldwin,	B.L.	58	*Saint Johns.*
Isabel Adelaide Ballou,	Ph.B.	100	*Bay City.*
Mary Ethel Bancroft,	A.B.		*Ann Arbor.*
Meta Alice Bancroft,	B.L.	52	*Ann Arbor.*
James William Bannon, Jr.,	Ph.B.	71	*Portsmouth, O.*
Clifford Aloysius Barabé,	B.S.	13	*Negaunee.*
John Ghio Barada,	Ph.B.	15	*Saint Louis, Mo.*
Bessie Laura Barber,	A.B.		*Charlotte.*
Max Hayden Barber,	B.L.		*Ishpeming.*
Edward Emerson Barbier,			*Benton Harbor.*
Clara Elizabeth Barclay,	A.B.	65	*Peoria, Ill.*
Louisa Elizabeth Barker,	A.B.	74	*Davenport, Ia.*
May Belle Barker,	Ph.B.	6	*Batavia, N. Y.*
Carl Jeffries Barlow,	B.L.		*Rawsonville.*
Anna Morrell Barnard,	A.B.	97	*Saginaw, West Side.*
Edna Hope Barr,	Ph.B.	67	*Battle Creek.*
Roland Bruce Barrett,	A.B.	20	*Chicago, Ill.*
Julius Earle Barton,	A.B.	12	*Detroit.*
Edson Sunderland Bastin,	B.S.	22	*Merchantville, N. J.*
Anna May Lamb Bates,	A.B.	47	*Charlotte.*
Ernest Sutherland Bates,	A.B.		*Cleveland, O.*
Julia Florentyne Bateski,	Ph.B.	38	*South Lake Linden.*
Francis Leon Bauer,	B.S.	97	*Hastings.*
Frank James Bayley,	B.L.		*Detroit.*
Minnie Martha Beal,	B.L.	56	*Northville.*
Thomas Beath, Jr.,	Ph.B.	94	*Detroit.*
Cora Jipson Beckwith,	B.L.	68	*Grand Rapids.*
Clara Evelyn Bedford,			*Ann Arbor.*
Elmer Nelson Beebe,	Ph.B.	58	*Ann Arbor.*
Norman Peter Beebe,	B.S.	7	*Mendon.*
Julia Henrietta Beese,	B.S.	73	*Saginaw.*
Grace Griffith Begle,	Ph.B.	74	*Ann Arbor.*
Howell Llewellyn Begle,	B.S.	46	*Ann Arbor.*
Ned Charles [illegible]	B.S.	32	*Ann Arbor.*
Winifred E[illegible]	A.B.	97	*Ann Arbor.*
Frank [illegible]	[illegible]	18	*Lansing.*

Helen Bender,			*Saint Louis, Mo.*
Arthur Harold Benefiel,	B.S.	91	*Ann Arbor.*
John A. Bennett,	B.S.		*Jackson.*
Philip Albert Bennett,	B.S.	88	*Ann Arbor.*
Robert Louis Benson,	B.S.		*Mount Morris.*
George Nelson Bentley,	B.L.	53	*Elm.*
Nancy Malana Bentley,	Ph.B.	52	*Marshall.*
John Knight Munro Berry,	Ph.B.	30	*Cedar Rapids, Ia.*
Ebenezer George Beuret,			*Flint.*
William Aunin Benscoter	A.B.		*Detroit.*
Milton Valentine Bickel,	B.S.	23	*McGregor, Ia.*
Ralph Jason Bidwell,	Ph.B.		*Tecumseh.*
John Chester Bills,	Ph.B.	81	*Allegan.*
Lucy Edna Bird,			*Ann Arbor.*
Howard Berkey Bishop,	B.S.	55	*Ann Arbor.*
Roswell Fairchild Bishop,	Ph.B.	91	*Ludington.*
Ruth Ellen Blackman,	Ph.B.		*Rochelle, Ill.*
Frank Ross Blair,	Ph.B.	18	*Brooklyn, N. Y.*
Jeannette Blanchard,			*Minonk, Ill.*
Olive Blanchard,	A.B.	11	*Marquette.*
George Neil Blatt,	Ph.B.	100	*Elwood, Ill.*
Arthur Judson Bleazby,	Ph.B.	67	*Kalkaska.*
Reuben Blumberg,	A.B.		*Constantine.*
Joseph D. Blunt,			*Florence, Col.*
Faye Bodmer,	Ph.B.		*Ann Arbor.*
Cora Louise Bodwell,	A.B.	92	*Grand Rapids.*
Winifred Bogle,	A.B.	67	*Ann Arbor.*
Jennie Bogner,	B.L.	105	*Detroit.*
Otto Herman Bollman,	B.L.	29	*Wilson, Minn.*
Charles John Borchardt,	B.L.	102	*Menominee.*
Donald Oernst Boudeman,	Ph.B.		*Kalamazoo.*
Elizabeth Boulsom,	Ph.B.	60	*Negaunee.*
Mai Bryan Bourne,	B.L.		*West Branch.*
Lena Edna Bow,	Ph.B.		*Saginaw.*
Florence Bowen,	A.B.	34	*Ann Arbor.*
Josephine Bowen,	A.B.	90	*Ann Arbor.*
Mabyn Bowen,	Ph.B.	31	*Detroit.*
Elba Harvey Boyd,			*Clio.*
Mertie Marie Boyer,	B.S.		*Goshen, Ind.*
Blanche Christine Boyle,	Ph.B.		*Detroit.*
Walter Channing Boynton,	B.L.	73	*Detroit.*
Arvid Conrad Braastad,	B.L.	19	*Ishpeming.*
Isabel Louise Bradley,	B.S.		*Bay City.*

John William Bradshaw,	A.B.	80	*Ann Arbor.*
Mary Lockwood Bradshaw,	A.B.	27	*Ann Arbor.*
Allie Theodore Bragg,	B.L.		*Tuscola, Ill.*
Harold Prell Breitenbach,	A.B.	25	*Detroit.*
Mary Arvilla Brewer,	A.B.	100	*Romeo.*
Charles Bricker,	A.B.		*Saginaw.*
Anna Adelia Bright,	B.L.	28	*Michigamme.*
Don Owen Brillhart,	Ph.B.	32	*Kendallville, Ind.*
Grace Marie Brinkerhoff,	Ph.B.	19	*Upper Sandusky, O.*
Anna Eloise Bristol,	Ph.B.	57	*Franklin.*
Mynnie Broad,	Ph.B.		*Ishpeming.*
Frederick Joseph Brogen,	A.B.	62	*Battle Creek.*
Arthur Dutton Brookfield,	B.S.	31	*Englewood, Ill.*
Harriet Eugenie Brooks,	Ph.B.		*Grand Rapids.*
Lucy Margaret Brooksbank,	A.B.		*Chicago, Ill.*
Amy Louisa Broome,	Ph.B.	10	*Ann Arbor.*
Allen Meason Broomhall,	Ph.B.		*Ann Arbor.*
Earle Mason Brown,	B.L.	87	*Battle Creek.*
Edith Harkness Brown,	A.B.	84	*Ann Arbor.*
Elizabeth Stryker Brown,	A.B.		*Ann Arbor.*
Florence Brown,			*Reed City.*
Helena Aloysia Brown,	B.L.	48	*Ypsilanti.*
Henry Jefferson Brown, Jr.,	A.B.	8	*Ann Arbor.*
Mabel Maree Brown,	A.B.	95	*Port Huron.*
Nellie Brown,	B.S.	28	*West Boy City.*
Victor Ernest Brown,	B.S.	56	*Detroit.*
William Henry Brown,			*Owosso.*
Arthur Graham Browne.	A.B.		*Bay City.*
Iva Bruce,	Ph.B.	55	*Birmingham.*
Charles Howard Bryan,	A.B.	3	*Charlotte.*
Evelyn Hope Bryant,	A.B.	56	*Mount Clemens.*
Frank Egbert Bryant,	B.L.	93	*Grand Rapids.*
Dora Gilberg Buchhalter,	Ph.B.	4	*Detroit.*
Frank Peyton Buck,	A.B.	82	*Saint Johns.*
Mary Gertrude Buek,	A.B.		*Paw Paw.*
Martha Errington Buckingham,	Ph.B.		*Muskegon.*
Mia Elizabeth Buckingham,	A.B.	8	*Muskegon.*
Bertha Grinnell Buell,	B.L.	108	*Ann Arbor.*
Thomas Bingham Buell, Jr.,	A.B.	31	*Union City.*
Madge Genevieve Bunday,	Ph.B.	67	*Saint Johns.*
Mary Louise Bunker,	Ph.B.	95	*Muskegon.*
Austin Frederick Burdick,	Ph.B.	31	*Lansing.*
Alice Gertrude Burdsal,	B.L.	88	*Evanston, Ill.*

Edith Imogene Burgess,	Ph.B.		*Omaha, Neb.*
Ruth Hayward Burington,	Ph.B.	56	*Conneaut, O.*
Ellen Perry Burnham,			*Malone, N. Y.*
Stewart Henry Burnham,	B.S.	90	*Vaughns, N. Y.*
George G. Burns,	B.S.		*Fremont.*
Mary Agnes Burton,	Ph.B.	79	*Detroit.*
Charles Sumner Bush,	A.B.		*Battle Creek.*
Vernon Eli Bush,	Ph.B.	51	*Battle Creek.*
Amy Iola Butterfield,			*Ann Arbor.*
Roger Champlin Butterfield,	A.B.	32	*Grand Rapids.*
Lawrence Magnus Butzel,	Ph.B.	34	*Detroit.*
Eva Maye Byerly,	B.S.	30	*Anamosa, Ia.*
Agnes Ophelia Cady,	B.L.	55	*Ann Arbor.*
Roscoe Call,			*Algona, Ia.*
William Callan,	B.L.	43	*Detroit.*
Edith Celeste Campbell,			*Hanover, N. H.*
Herbert John Campbell,	Ph.B.	35	*Riverside, Ill.*
Ira Alexander Campbell,	B.L.	60	*Charlevoix.*
James Andrew Campbell,	A.B.	46	*Ypsilanti.*
Oscar James Campbell,	A.B.		*Cleveland, O.*
Zilpha Jane Campbell,	Ph.B.	28	*Birmingham.*
Arthur Whittlesey Cannell,			*Lansing.*
Robert Court Cardell,			*Perry, Ia.*
Amelia Louise Carey,	A.B.	85	*LaGrange, Ill.*
Margaret Sprague Carhart,	Ph.B.	94	*Ann Arbor.*
Martin Henry Carmody,	B.S.	96	*Grand Rapids.*
Anna Carpenter,	Ph.B.	71	*Saginaw, West Side.*
Harry Montague Carpenter,	Ph.B.		*Muskegon.*
Luther Clarendon Carpenter,	B.S.	85	*Bay City.*
Herbert Porter Carrow,	B.S.		*Ann Arbor.*
Mary Ruth Butts Carson,	B.L.	106	*Detroit.*
Mary Trowbridge Carson,	B.L.	66	*Ann Arbor.*
Grace Chloe Cartwright,	B.L.	92	*Oregon, Ill.*
William Francis Casavan,			*Sac City, Ia.*
Clara Lovina Case,	B.L.	59	*Ypsilanti.*
Elisha Warner Case,	Ph.B.	64	*Chicago, Ill.*
Charles Lewis Cass,			*Ann Arbor.*
James Henry Casselman, LL.B.,			*South Finch, Ont.*
Minnie Cecilia Cassidy,			*Chelsea.*
Rose Mary Cassidy,	B.L.	59	*South Bend, Ind.*
Edward Burns Caulkins,	B.L.	55	*Detroit.*
Marvin Howard Chamberlain, Jr.,	A.B.		*Detroit.*
Vera Chamberlin,	Ph.B.	63	*Montpelier, O.*

Edmund Claude Champion,	B.S.	111	*Three Rivers.*
Clement Forsythe Chandler,	A.B.	34	*Ann Arbor.*
Elma Chandler,			*Greenville.*
Edmund Hall Chaney,	A.B.	61	*Detroit.*
Roy Dikeman Chapin,	B.L.		*Lansing.*
William Charles, Jr.,			*Manistee.*
Elizabeth Grace Charlton,			*Louisville, Ky.*
Benjamin Walter Chidlaw,	A.B.	12	*Cleves, O.*
Lelia Merrilla Childs,	B.S.	109	*Ann Arbor.*
Andrew B. Christenson,			*Gunnison, Utah.*
Sarah Gertrude Chubb,	A.B.	16	*Coldwater.*
Francis LeGrand Church,	Ph.B.	73	*Birmingham.*
Gertrude May Chute,	Ph.B.	44	*Ann Arbor.*
Edwin Sherwood Clapp,	B.S.		*Galesburg.*
Gertrude Lydia Clark,	A.B.	31	*Howell.*
Martha Canfield Clark,	B.L.	31	*Ann Arbor.*
Sereno Burton Clark,	A.B.	64	*Union City.*
Wilson Warner Clark,	B.L.	32	*Cheboygan.*
Edith Irene Clarke,	A.B.		*Detroit.*
Frances Elizabeth Clarke,			*Albion, N. Y.*
Ina Van Liew Clawson,			*Detroit.*
William Henry Harrison Clayton,	B.S.	4	*South McAlaster, Ind.* [*Ter.*
Earl Amos Clemans,			*Oshkosh, Wis.*
Ernest Cleverdon,	B.L.	82	*Austin, Ill.*
Alphonso Morton Clover,	B.L.	41	*Lancaster, O.*
Helen Frances Clute,	Ph.B.	88	*Montezuma, Ia.*
Morse Moses Cohen,	B.L.	54	*Detroit.*
Frederick Standish Colburn,	A.B.	26	*Detroit.*
Walter Francis Colby,	A.B.	32	*Ann Arbor.*
May Belle Coldren,	Ph.B.		*Salem.*
Bessie Isabella Cole,	B.L.	88	*Albion.*
Harrie Newton Cole,	A.B.	48	*Ann Arbor.*
Leon Jacob Cole,	B.S.	51	*Ann Arbor.*
Mary Scott Cole,			*Ann Arbor.*
Nina Collins,	B.S.	7	*Houghton.*
Henry Dutton Colt,			*Owosso.*
William Alfred Comstock,	Ph.B.	92	*Alpena.*
Lulu Coney,	Ph.B.		*Ionia.*
Amy Florence Conger,	A.B.	54	*Grand Rapids.*
Seymour Beach Conger,	A.B.	71	*Grand Rapids.*
May Frances Conlon,	B.L.	10	*Grand Rapids.*
Ruie Ann Connor,	Ph.B.	89	*Ann Arbor.*

Vera Nancy Connor,	B.L.	2	*Ann Arbor.*
Alice Helena Cook,	A.B.	71	*Forestville, N. Y.*
Robert Hinckley Cook,	A.B.		*Detroit.*
Charles Dean Cool,	A.B.	81	*Decatur, Ill.*
Elizabeth Cooley,	B.S.		*Lansing.*
Mary Beatrice Cooley,			*Ann Arbor.*
Frank Lawrence Cooper,	B.S.	60	*Owosso.*
Frank William Copley,	A.B.		*Kansas City, Mo.*
Harold Dunbar Corbusier,	B.S.	114	*Ann Arbor.*
Joseph Henry Corns,	Ph.B.	32	*Detroit.*
Harriet Marian Cornwell,			*Ann Arbor.*
Edward Samuel Corwin,	Ph.B.	62	*Plymouth.*
Henry Hobart Corwin,	Ph.B.	96	*Pontiac.*
John Francis Cotter,	B.L.		*Detroit.*
George William Cottrell,	B.S.	94	*Detroit.*
Margaret Helen Cousin,	A.B.	32	*Detroit.*
Etta M. Coyner,			*Colfax, Ind.*
Harry Kent Crafts,	A.B.	32	*Austin, Ill.*
Michael Hugh Crissman,	Ph.B.	26	*Romeo.*
Lee Cronbach,	B.L.	64	*Mount Vernon, Ind.*
John Hunt Crosby,	B.S.		*New Buffalo.*
Jenny English Crozier,	B.S.	48	*Ann Arbor.*
Charles Edward Cullen,	A.B.		*Chicago, Ill.*
Robert Francis Culver,	Ph.B.		*Mosherville.*
Florence Mabelle Cumings,	Ph.B.	31	*Paw Paw.*
Edna Florence Cumming,	A.B.	4	*Port Huron.*
Agnes Fleming Currie,	Ph.B.	5	*Lake Linden.*
Harvey Lincoln Curtis,	Ph.B.	63	*Dansville.*
Walter Galpin Curtis,	B.S.	90	*Salem.*
James Oliver Curwood,			*Owosso.*
Winifred Campbell Daboll,	A.B.	47	*Saint Johns.*
Alma Maria Dahlstrom,	A.B.		*Ishpeming.*
Anna Agnes Daley,	A.B.	59	*Menominee.*
Hiram Charles Daley,	A.B.	89	*Ovid.*
Maude Loretta Daley,	A.B.	39	*Menominee.*
George Green Damon,	B.S.	27	*Saint Louis, Mo.*
Henry Thomas Danforth,	B.S.	7	*Ann Arbor.*
Howard Richard Daniels,	Ph.B.	94	*Owosso.*
Allen Lynn Darr,	B.L.		*Tacoma, Wash.*
Edward Evan Davies,	B.S.	30	*Dixon, Ill.*
Morgan Lloyd Davies,	B.L.	60	*Dixon, Ill.*
Arthur Llewellyn Davis,	Ph.B.	31	
Benn Richard Davis,	A.B.	3	

Edwin Alfred Davis,	A.B.	91	*Chicago, Ill.*
Emerson Davis,	B.S.	31	*Detroit.*
Levi Orville Davis,	B.L.	92	*Ann Arbor.*
Louise Mary Davis,	B.S.	24	*Aurora, Ill.*
Lucy Corbett Davis,	Ph.B.	27	*Lansing.*
William Chalmers Davis,	A.B.	37	*Norwood, N. Y.*
Mabel Katharine Davison,	Ph.B.	36	*Joliet, Ill.*
Robert Dawson,	B.L.		*Hastings.*
Charles Fisher Delbridge,	B.L.	91	*Detroit.*
Merle Haynes Denison,			*Geneseo, N. Y.*
Minna Caroline Denton,			*Fort Smith, Ark.*
Henri Pierre de Pont,	B.S.	25	*Ann Arbor.*
Genevieve Ledyard Derby,	B.S.	67	*Saginaw.*
Fred Gray Dewey,	A.B.	12	*Pontiac.*
Hanna Mary Dewey,	Ph.B.		*Owosso.*
Lydia Maria Adams DeWitt, M.D.,	B.S.	111	*Dexter.*
Maud Mary DeWitt,	B.S.	63	*Sandusky, O.*
Frank Diehl,	Ph.B.	78	*Holt.*
Harry Clifford Doane,	B.S.	95	*Ann Arbor.*
Louise Frances Dodge,	Ph.B.	48	*Adrian.*
Agnes Sybil Dole,	B.S.	29	*Allegheny, Pa.*
Benjamin Edward Dolphin,	B.S.	29	*Kansas City, Mo.*
Alice Mabel Donnelly,	A.B.	92	*Grand Rapids.*
Harold Medoris Doolittle,			*Elyria, O.*
Monica Ella Dougherty,			*Cawker City, Kan.*
Louis Kirke Douglass,	A.B.	32	*Detroit.*
Stephen Arnold Douglass,	B.S.	84	*Plain City, O.*
Elsie Grace Downer,	B.S.	63	*Hancock.*
Adelaide Elizabeth Dressel,			*Kane, Ill.*
Adolphus Mansfield Dudley,	A.B.	30	*Morrow, O.*
Irene Anne Duffy,	B.L.	17	*Ann Arbor.*
Frances Jewett Dunbar,			*Buffalo, N. Y.*
Helen Dunham,	Ph.B.	47	*West Bay City.*
Clara E. Dunn,	A.B.	57	*Lapeer.*
Marion Ida Durand,	Ph.B.	62	*Ann Arbor.*
Harry Shurtleff Durant,	Ph.B.		*Chicago, Ill.*
Lucy Jeannette Durfee,	Ph.B.		*Decatur, Ill.*
Mae Durkee,	B.S.	90	*Pontiac.*
Veronica Dwyer,	B.L.	53	*Ann Arbor.*
Eaman,			*Detroit.*
nn,	B.L.	71	*Detroit.*
	B.S.		*Saint Louis, Mo.*

Orrin Kinsley Earl,	A.B.		*Chicago, Ill.*
Allen Jay Easton,	B.S.	64	*Lapeer.*
Mary Newell Eaton,	A.B.	40	*Grand Rapids.*
Schuyler Beauclerc Eddy,	A.B.	23	*Grand Rapids.*
Edith Mabel Edwards,	Ph.B.	36	*Fremont.*
John Henry Ehlers,			*Dayton, O.*
Mary Margaret Ehrhorn,	Ph.B.	91	*Rock Island, Ill.*
Louis Elbel,	B.L.	51	*South Bend, Ind.*
Daniel Irvin Elder,	B.S.	5	*Indianapolis, Ind.*
Leo Henry Elkan,	B.S.	18	*Chicago, Ill.*
John Alexander Elliott,	B.S.		*Des Moines, Ia.*
Lucy Elvira Elliott,	Ph.B.	5	*Pontiac.*
Ralph Henry Elsworth,	B.S.	64	*Ludington.*
†Warren Philo Elmer,	B.S.	21	*Lodi, O.*
Philip Roswell Erickson,	Ph.B.	61	*Chicago, Ill.*
Mary Jane Erwin,			*Farmington.*
Charles Ettenson,	B.S.		*Leavenworth, Kan.*
Arthur Maybury Evans,	B.S.		*Ironwood.*
James Allison Evans,			*Erie, Pa.*
Tessa Elizabeth Evans,	B.L.		*Iron Mountain.*
Walter Anthony Eversman,	Ph.B.	31	*Toledo, O.*
Benjamin George Ewald,	A.B.	56	*Benton Harbor.*
Charles Jefferson Ewald,	A.B.	24	*Benton Harbor.*
Edith Gertrude Fales,	Ph.B.	60	*Detroit.*
Gertrude Claire Falk,	Ph.B.		*Howell.*
Philip Pearl Farnham,	A.B.	16	*Brighton.*
Ralph Farnum,	A.B.	74	*Ann Arbor.*
Frances Indiana Farr,	Ph.B.		*Grand Haven.*
Lillian Mae Farthing,	B.L.	4	*Flushing.*
George Edwards Fay,	B.S.	93	*Chicago, Ill.*
John Frederick Feddersen,	A.B.	24	*Camanche, Ia.*
Clara Feick,	B.S.	30	*Sandusky, O.*
Abram Henry Felker,	B.L.	27	*Ann Arbor.*
Adam Ernest Ferguson,	B.L.		*Sault Ste. Marie.*
John Alexander Ferguson,	Ph.B.		*Detroit.*
Maude Elliott Ferguson,	Ph.B.		*White Pigeon.*
Herbert Louis Ferrand,	A.B.	33	*Grand Rapids.*
Helen Mary Ferrier,			*Chicago, Ill.*
Mary Ellen Ferris,	Ph.B.	12	*Ann Arbor.*
Mary Goodrich Field,	B.L.	34	*Detroit.*
William Richard Fieldhouse,	Ph.B.	99	*White Pigeon.*
Mabel Wilson Filkins,	A.B.	62	*Howell.*
Florence Sara Fisher,	A.B.	24	*Bay City.*

Walter Turner Fishleigh,	B.S.	4	*Chicago, Ill.*
Clara Gertrude Fitzpatrick,	B.S.		*Ishpeming.*
Grace Sarah Flagg,	A.B.	100	*Ann Arbor.*
Richard Louis Flynn,	B.L.	12	*Ann Arbor.*
Belle Fogo,	A.B.	62	*Rochester.*
Victoria Margaret Fohey,	Ph.B.	56	*Webster.*
Lena Mable Foote,	A.B.		*Charlotte.*
Charlotte Augusta Forbes,	A.B.	27	*Ann Arbor.*
Helen Daisy Fortaine,	Ph.B.	89	*Decatur.*
Wille Alvin Forward,	Ph.B.	79	*Marion, Ind.*
Walter Seymour Foster,	B.L.	72	*Lansing.*
Alfred Hugh Fowler,	A.B.		*Englewood, Ill.*
Dorothy Fowler,	A.B.	30	*Des Moines, Ia.*
Estelle Helen Fox,			*Hinsdale, Ill.*
Walter Wright Fox,	Ph.B.		*Detroit.*
Sabra Ann Fralick,	Ph.B.	16	*South Bend, Ind.*
Ingeborg Sophia Fredlund,	B.S.	53	*Ann Arbor.*
Elmer Leslie Freeman,	A.B.	75	*Detroit.*
Ernest E. Freeman,	Ph.B.	30	*Chicago, Ill.*
James Leslie French,	A.B.	86	*Grand Rapids.*
Oscar Friedrich,	B.S.		*Grand Rapids.*
Lena May Frost,	Ph.B.	31	*Riverside, Ill.*
Lavinia Catherine Fruechtel,	B.L.	70	*Saginaw, West Side.*
Frances Louise Fugate,			*Indianapolis, Ind.*
Elizabeth Fullerton,	B.L.		*Cape Girardeau, Mo.*
George Washington Furrey,	Ph.B.	104	*Holyoke, Col.*
Grace Fyfe,	B.S.	18	*Grand Rapids.*
Mabel Caroline Gale,	B.S.	110	*Aurora, Ill.*
Florence Matie Galpin,			*Dixboro.*
Lloyd Edward Gandy,	Ph.B.	30	*Spokane, Wash.*
Allen Wynand Gardner	B.S.		*Detroit.*
Benjamin Gardner,	Ph.B.		*Chicago, Ill.*
Isabel Gay,	Ph.B.		*Owosso.*
Henry Mills Gelston,	A.B.	58	*Ann Arbor.*
Louis Merwin Gelston,	B.S.	31	*Ann Arbor.*
Willis Lord Gelston,	A.B.		*Ann Arbor.*
Louise Rosseel Gibbs,	B.L.	78	*Detroit.*
Helen Julia Gibson,	Ph.B.	11	*Aurora, Ill.*
Marguerite Gibson,	B.L.	69	*Chicago, Ill.*
Sarah Eleanor Gibson,			*Hagerstown, Md.*
Fenton Lewis Gilbert,	[illegible]	95	*Toledo, O.*
Selma Gilday,	[illegible]	10	*Monroe.*
Grace Estelle Gill[illegible]	[illegible]	[illegible]	[illegible]

Mary Antoinette Gillett,			*Manchester.*
Fredericka Botsford Gillette,			*Ann Arbor.*
Ella Maud Glaser,	A.B.	36	*Ann Arbor.*
Mary Alice Goddard,			*Ann Arbor.*
Mary Morris Godfrey,	A.B.	37	*Toledo, O.*
Flora Luella Goeschel,	B.S.	79	*Bay City.*
Miriam Deborah Goldman,	Ph.B.	30	*Detroit.*
Bertha Marion Goldstone,	Ph.B.	45	*Saginaw.*
William Arthur Gonter,	A.B.	32	*Battle Creek.*
Herbert Charles Gore,	B.S.	96	*Chicago, Ill.*
Frederick Russell Gorton,	B.S.		*Ypsilanti.*
Philip Emanuel Graber, M.S., *National Normal Univ.*,			*Genoa, O.*
Walter Gradle,	B.L.	41	*Chicago, Ill.*
Stanley Richard Granger,	B.S.	31	*Detroit.*
Ephraim George Gray,	B.S.		*Ludington.*
William Grayson, Jr.,	B.S.	26	*Saint Louis, Mo.*
Carl Munson Green,	B.S.	55	*Charlotte.*
Florence Wentworth Greene,	Ph.B.	16	*Ann Arbor.*
Mabel Fairbank Greene,	B.L.		*Jackson.*
Otto Fairchilds Greene,	B.L.		*Greenville.*
Burton Otto Greening,	Ph.B.	66	*Saint Joseph.*
Earl Ralph Lamont Gregg,	Ph.B.	54	*Ann Arbor.*
Benjamin Gregor,	B.L.		*Deanville.*
Marie Greiderer,			*Dundee.*
Martha Greiner,			*Lisbon.*
Arthur Burtis Groesbeck,	B.L.	50	*Grand Rapids.*
Wilbur Condit Gross,	A.B.		*Chicago, Ill.*
William Joseph Guthrie,	A.B.	75	*Bedford, Ia.*
Edith Wilhelmina Gylling,	B.L.	29	*Ishpeming.*
Lillian Ellen Hadley,			*Madrid, N. Y.*
Lida Hafford,	Ph.B.	21	*Carrollton, Ky.*
Leonard Dixon Haigh,	B.S.	60	*Port Huron.*
Elbert Edgar Haight,	B.L.	63	*Sycamore, Ill.*
Herbert John Haire,	A.B.		*Grand Rapids.*
Florence Mooers Hall,	B.L.	80	*Chicago, Ill.*
Florence Slocum Hall,	A.B.	89	*Grand Rapids.*
Ernest Milton Halliday,	B.S.	4	*Flushing.*
James Perrine Hamilton,			*Saint Joseph.*
Lloyd Hamilton,	B.L.	7	*Ashland, Ill.*
Nellie May Hamilton,	Ph.B.		*Ann Arbor.*
Elizabeth Beckwith Hancock,	Ph.B.		*Grand Haven.*
Harris Mathewson Hanshue,	A.B.		*Lansing.*

Martin Hanson,	B.S.		*Chicago, Ill.*
Ida Christine Harbeck,	Ph.B.	99	*Detroit.*
Harriet Harkness,	A.B.	62	*Philadelphia, Pa.*
Norman Follett Harriman,			*Ann Arbor.*
Florence Harris,	Ph.B.	34	*Lake Linden.*
John Wister Harris,	B.S.	86	*Ann Arbor.*
Joseph Henry Harris, Jr.,	B.S.	15	*Kansas City, Mo.*
Verna Louise Harris,	A.B.	25	*Ann Arbor.*
Julia Helena Harrison,			*Paw Paw.*
William Benson Harrison,	Ph.B.	104	*Imlay City.*
Caroline Campbell Harvey,	B.S.	12	*Detroit.*
Jennie Evalyn Hassett,	B.L.	51	*Negaunee.*
Frank Arthur Hatch,	Ph.B.	56	*Detroit.*
Charles Frederic Hately,	B.L.		*Irondale, O.*
Gertrude Haun,	B.S.	25	*Dollar Bay.*
Elizabeth Sheldon Hawley,	A.B.	90	*Northumberland, Pa.*
Merritt Mattison Hawxhurst,	A.B.	88	*Ann Arbor.*
William Sylvester Hazelton,	A.B.	42	*Leonard.*
Lilian Matilda Headsten,	B.L.	26	*Escanaba.*
Kate Healy,	Ph.B.	105	*Fort Dodge, Ia.*
Irma Ann Heath,			*Grand Rapids.*
Julia Wright Heath,	A.B.	29	*Chicago, Ill.*
Lewis Henry Hector,	B.S.	32	*Allegheny, Pa.*
Florence Hedges,	A.B.	30	*Lansing.*
Earl Heenan,	A.B.	11	*Dryden.*
Henry Heitmann,	Ph.B.	91	*New Bremen, O.*
Jessie Josephine Heller,	B.L.		*Ann Arbor.*
William Christel Helmers,	B.L.	30	*Leavenworth, Kan.*
Ada Grace Hemingway,	B.L.	56	*Hadley.*
Dora Davis Henderson,	Ph.B.	30	*Jackson.*
Fannie Elizabeth Henion,	Ph.B.		*Saginaw.*
Nathalia Henne,	B.L.	38	*Springfield, Ill.*
Alfred Henry,			*Marion, Ind.*
Harry Patterson Herdman,	Ph.B.	73	*Zanesville, O.*
William Henry Herrustein,	B.S.		*Chillicothe, O.*
Maud Ellen Hess,	Ph.B.	4	*Ann Arbor.*
John Lawrence Hibbard,	A.B.	32	*Detroit.*
Alice Jovita Hickey,	B.L.	93	*Michigamme.*
Arthur Pomeroy Hicks,	B.S.	30	*Ann Arbor.*
Flora Elsie Hill,	B.L.	99	*Flint.*
Alta Mary Hilliard,	B.L.	56	*Mason.*
Eva Amelia Hillman,	Ph.B.	60	*Detroit.*
Frederic William Hillyer,	A.B.	61	*Grand Rapids.*

Percy Albert Himes,	B.L.	92	*Grand Rapids.*
Elizabeth Alice Hinchey,	Ph.B.		*Sandusky, O.*
Katharine Genevieve Hine,	Ph.B.	37	*Tecumseh.*
Genevra Starr Hoadley,	B.S.		*Bryan, O.*
Arthur Joseph Hoare,	Ph.B.	65	*Ludington.*
Eugenia Hobbs,	B.S.	88	*Nineveh, N. Y.*
Rachel Alice Hogshire,			*Lebanon, Ind.*
Emma Noble Holbrook,	A.B.	14	*LaGrange, Ill.*
Lemuel Guy Holbrook,	A.B.	56	*Duplain.*
Euphemia Goodman Holden,	Ph.B.	23	*Chicago, Ill.*
Ida Louise Holden,	Ph.B.	26	*Detroit.*
Charles Benjamin Hole,	B.L.	91	*Flushing, N. Y.*
Clarence Sanford Holmquist,	B.L.		*Salina, Kan.*
Abram James Holland,	A.B.	56	*Ann Arbor.*
Alice Maude Hollister,	B.S.	48	*Lake Linden.*
Richard Dennis Teall Hollister,	B.S.	2	*Ann Arbor.*
Frank Sylvester Honberger,	B.L.		*Sandusky, O.*
Leonard Counsellor Honesty,	A.B.	91	*Memphis, Tenn.*
Fred Merriam Hopkins,	A.B.	8	*Romeo.*
Robert Milton Hopkins,	A.B.	75	*Canton, Mo.*
Ida May Hopson,	B.L.	64	*Detroit.*
Alice Louise Horton,	Ph.B.		*Fruit Ridge.*
Jessie Margaret Horton,	B.L.	24	*Chicago, Ill.*
Juliet Grace Horton,	Ph.B.	54	*Princeton, Ill.*
Clara May Hosie,	A.B.		*Wayne.*
Alfred Maurice Houston,	B.L.		*Joliet, Ill.*
Mary Frances Houston,	Ph.B.	28	*Pontiac.*
Royal Barnhart Hovey.	B.S.	104	*Independence, Ia.*
Janetta Eveline Howard,	Ph.B.	31	*Ionia.*
Lillian Elise Howard,	A.B.	25	*Ann Arbor.*
Ruby Belle Howard,			*Edmond, Okla.*
Jessie Ann Howell,	B.S.	27	*Cassopolis.*
Nina Mae Howlett,	Ph.B.	45	*Ann Arbor.*
Monroe Allen Hoyt,	Ph.B.	18	*Carroll, Ia.*
Winifred Alice Hubbell,	A.B.	95	*Saginaw, West Side.*
Arthur Scott Hudson,	A.B.	94	*Detroit.*
Maude Hudson,	A.B.	35	*Saginaw, West Side.*
Charles Augustus Hughes,	B.S.		*Eaton Rapids.*
Mary Edith Huhn,	B.L.	30	*Saranac.*
Harriett Hull,	Ph.B.	61	*Lansing.*
Helen Marion Hume,	Ph.B.		*Muskegon.*
Theresa Florence Hummel,	B.S.		*Houghton.*
Mary Zaidee Humphrey,	B.S.		*Lansing.*

Myrtle Adeline Hunt,	A.B.	41	*Moline, Ill.*
Woolsey Welles Hunt,	A.B.		*Grand Rapids.*
Roy J. Huntley,	Ph.B.	4	*Ann Arbor.*
Harry Rogers Hurlbut,	A.B.	94	*Chicago, Ill.*
Charles DuBois Hurrey,	B.S.	61	*Ann Arbor.*
Clarence Barzillai Hurrey,	B.S.	69	*Ann Arbor.*
Harriet Adelle Hurrey,	Ph.B.	26	*Ann Arbor.*
Roscoe Burhans Huston,	B.S.		*Ann Arbor.*
Anna Katherine Hutchenreuther,	A.B.	18	*West Bay City.*
Frederick Eugene Hutchins,	A.B.	19	*Chicago, Ill.*
Arthur Mastick Hyde,	A.B.	94	*Princeton, Mo.*
Carl Henry Ibershoff,	B.L.	107	*Saginaw.*
Roy Igou,	A.B.	32	*Grove City, Ill.*
Genevieve Imus,			*Ann Arbor.*
John George Ingold,			*Blissfield.*
Fred Lewis Ingraham, LL.B.,			*Ypsilanti.*
Cecil McKee Jack,	Ph.B.	90	*Decatur, Ill.*
Anna Jackson,	B.S.		*Chicago, Ill.*
Henry Francis Jacob,	Ph.B.	94	*Watsonville.*
Mary Florence Jacoby,	Ph.B.		*Ann Arbor.*
May Selma Jaehnig,	B.S.	90	*Hancock.*
Clara Octavia Jamieson,	A.B.	37	*Ann Arbor.*
Estelle Jenney,			*Ann Arbor.*
Owee Pearl Jenney,	B.L.	59	*Ann Arbor.*
Jessie Gertrude Jennings,	A.B.	33	*Pontiac.*
Albert Willehad Valentine Johnson,	B.L.		*Ironwood.*
Burton Branch Johnson,	A.B.	91	*Owosso.*
Fred Joseph Johnson,	B.L.	84	*Mundy.*
Margaret Jones,	Ph.B.	26	*Ann Arbor.*
Percy Wall Jones,	B.L.	88	*Dowagiac.*
Wilber Judson,	B.S.		*Lansing.*
Clyde Watkins Jump,	B.S.	60	*Plainfield, Ill.*
Demeter Kalinoff,	B.S.	110	*Ann Arbor.*
Blanche Peppie Kallman,	B.S.		*Chicago, Ill.*
Marian Clara Kanouse,	Ph.B.	50	*Manistee.*
Walter Edward Kapp,	A.B.	58	*Dubuque, Ia.*
Max Emanuel Kaufman,	Ph.B.	43	*Saint Louis, Mo.*
Leo John Keena,	[illegible]	13	*Detroit.*
Thomas Henry Keeshan,	[illegible]		*Junction City, Kan.*
Albert Henry Keith,	[illegible]	84	*Chicago, Ill.*
Mildred Hannah Keith,	[illegible]	[illegible]	[illegible]

Katherine Margaret Kellas,			*Malone, N. Y.*
Dora Ione Keller,	B.S.	4	*South Bend, Ind.*
Leila Emma Kelley,	B.S.		*Milan.*
Gertrude Blanche Kennedy,	B.L.	76	*AuSable.*
Keith Kennedy,	B.S.	92	*Cobourg, Ont.*
Charles Wolcott Kent,	B.S.	96	*Kalamazoo.*
Thomas Keppel,	B.S.	44	*Zeeland.*
Harry Richmond Kern,	B.S.	8	*Mattoon, Ill.*
Fannye S. Kerngood,	B.S.	12	*Saginaw.*
Grace Laura Kilbourn,	Ph.B.	28	*Grand Haven.*
Dan Arnold Killian,	B.S.		*Allegan.*
Edward Bassett Killian,	Ph.B.	60	*Allegan.*
Helen Louise Kimlin,	Ph.B.	88	*Quincy, Ill.*
Elsa King,	B.L.	91	*Ann Arbor.*
William Charles Frederick Kinietz,			*Lapeer.*
Zachariah Kinne, Jr.,	A.B.		*Three Oaks.*
Clarence Elmer Kinney,			*Kansas City, Mo.*
Alfred John Kinnucan,			*Detroit.*
Glennett A. Kingsbury,	B.S.		*Cassopolis.*
Frank Cameron Kinsey,	A.B.	64	*Grand Rapids.*
Willing Dunning Kirk,	B.S.	16	*Hartland, Wis.*
Horace Kitchel,	B.L.	96	*Coldwater.*
Rae Harman Kiteley,	A.B.	88	*Longmont, Col.*
Ida Elizabeth Kittredge,	Ph.B.	68	*Ann Arbor.*
Karoline Kläger,	B.L.	61	*Ann Arbor.*
Adele Louise Klein,	Ph.B.	32	*Detroit.*
Katherine Louise Klingel,			*South Bend, Ind.*
Caroline Klingmann,	Ph.B.		*Ann Arbor.*
Carl Otto Kloepfer,	A.B.	19	*Plymouth, Ind.*
Albert Henry Knapp,	B.S.	65	*Saint Charles, Minn.*
Ezra Charles Knapp,	A.B.		*Blissfield.*
Robert Keith Knight,	Ph.B.		*Kalamazoo.*
James Lawrence Kocher,	B.L.	88	*Bluffton, Ind.*
Ineson James Kohler,	A.B.	38	*Lapeer.*
Amy Lydia Krolik,	B.S.	4	*Detroit.*
Daisy Alice Kugel,	B.S.	55	*Sandusky, O.*
Sanford Webb Ladd,	A.B.	30	*Milford.*
Evangeline Lodge Land,	B.S.	92	*Detroit.*
Laura Arlene Lane,	A.B.		*Victor, N. Y.*
Helen Rose Lang,			*Indianapolis, Ind.*
Annie Williams Langley,	B.L.	33	*Cleveland, O.*
Myrtle Ellen Lare,	Ph.B.	62	*Howell.*
Morris Sellers Largey,	B.L.		*Butte, Mon.*

John Larsen,			*Chicago, Ill.*
Emma Ellen Larson,	Ph.B.		*Calumet.*
Adelbert Eugene Lathers,	B.S.	82	*Inkster.*
John Stuart Lathers,	B.L.	113	*Ann Arbor.*
Charles Gillett Lathrop,	A.B.	11	*Detroit.*
Clarence Case Latta,	A.B.		*Goshen, Ind.*
Nellie Leona LaVigne,	B.S.		*Champion.*
Louise Lau,	Ph.B.		*Ann Arbor.*
Marion Agnes Lawton,			*Lawton.*
Margaret Rachel Layton,	A.B.	59	*Bay City.*
Charlotte Mendell Leavitt,			*Kalamazoo.*
Robert Owen LeBaron,	B.S.	60	*Pontiac.*
Fred August Lehman,	B.S.		*Adrian.*
William Jacob Lehman,	B.S.	30	*Adrian.*
Lilabel Adda Lemon,	Ph.B.	82	*Ann Arbor.*
Louise Mueller Lenhart,			*Bridgman.*
Mary Eleanor Lennon,	B.L.	95	*Lennon.*
Minerva Mabelle Leonard,	Ph.B.	10	*Denver, Col.*
Louis Levison,	B.L.	28	*Leipsic, O.*
Sadie Rosalyn Levitt,			*Grand Rapids.*
Frances Crane Lillie, M.D., *Northwestern University*,			*Ann Arbor.*
Harry Martin Limbach,	Ph.B.	8	*Monument, Col.*
Arthur Mayer Lindauer,	B.S.	51	*Chicago, Ill.*
Laura Anna Lindenschmitt,	B.S.		*Buffalo, N. Y.*
Ellen Hart Littlefield,	Ph.B.	92	*Detroit.*
Milton Louis Livingston,	Ph.B.	36	*Chicago, Ill.*
Eva May Locke,	A.B.	96	*Nashua, N. H.*
Benjamin Chester Loder,	A.B.		*Lapeer.*
Arthur Adolph Loeb,	Ph.B.	36	*Chicago, Ill.*
John Loeffler,	B.L.	84	*Ann Arbor.*
Marea Daisy Longwell,			*Paw Paw.*
Frank Denison Longyear,	B.L.		*Lansing.*
Henry Harrison Lovell,	B.S.	104	*Flint.*
Abe Lowenhaupt,	B.L.	64	*Mount Vernon, Ind.*
Frederick Low Lowrie,	Ph.B.	32	*Detroit.*
Blanche Lurton,	B.L.	45	*Norwood, Ill.*
Lulu Veronica Lusby,	Ph.B.	63	*Ann* [illegible]
James Leo Lynch,	B.S.	114	[illegible]
Carolyn Blount Lynd,	A.B.		[illegible]
Edith Lucia Lyons,	A.B.		[illegible]
Elias Parke Lyons,	A.B.		[illegible]
Mary Eveline Lyons,	Ph.B.		[illegible]

Eleanor Grace Mabley,	Ph.B.	8	*Jackson.*
James Nelson McArthur,	B.L.	40	*Detroit.*
Rose Cook McClurkin,	A.B.	60	*Princeton, Ind.*
Ray James McColl,	B.L.	90	*Delhi Mills.*
Minnie McCormick,	B.S.	51	*Owosso.*
Nellie Mabel McCormick,	Ph.B.		*Owosso.*
Leila Knickerbocker McCotter,	B.S.	92	*Pontiac.*
Lizzie May McCracken,	B.L.	18	*Farmington.*
Nellie McCracken,			*Farmington.*
Herbert Jay McCreary,	B.S.	89	*Erie, Pa.*
Francis Joseph McCue,	Ph.B.	28	*Mount Pleasant.*
Lester Angus McDiarmid,			*Bowne.*
Rose Jane Cameron McDonald,	B.S.		*Acme.*
John Seymour McElligott,	B.S.	62	*Manistee.*
Benjamin Franklin McGee,	B.S.		*Vienna, Ill.*
Robert Roy McGeorge,			*Almont.*
Edwin McGinnis,	B.L.	32	*Chicago, Ill.*
James Galbraith McHenry,	Ph.B.	92	*Lansing.*
Florence Margaret McHugh,	Ph.B.	65	*Galena, Ill.*
William Lyman Mack,	A.B.	87	*Ann Arbor.*
Elizabeth Estella McKay,	Ph.B.	10	*Caro.*
Nellie McKay,	Ph.B.	91	*Caro.*
Olive Jean McKay,			*Romeo.*
Robert Cutler McKeighan,	Ph.B.	56	*Saint Louis, Mo.*
Sara Louise McKenzie,	Ph.B.	63	*Ann Arbor.*
Walter Lee McLauchlan,	B.S.	27	*Chicago, Ill.*
John Frederick McLean,	B.L.	61	*Menominee.*
Archibald Harold McMillan,	A.B.	103	*Bay City.*
Agnes MacNaughton,	B.L.	93	*Ann Arbor.*
Ward J. MacNeal,	B.S.	39	*Ann Arbor.*
Mabel Macqueen,	B.L.	60	*Perry.*
Maud McVoy,	B.L.	31	*Bay City.*
Ralph Van Deman Magoffin,	A.B.	20	*Topeka, Kan.*
Reynolds Cornelius Mahaney,	B.S.	40	*Ann Arbor.*
Ellen Viola Maher,			*Fort Dodge, Ia.*
Effie Clare Mann,	B.L.	90	*Elgin, Ill.*
John Royal Mansfield,	B.S.		*Bay City.*
Otto Charles Marckwardt,	Ph.B.	37	*Grand Rapids.*
André George Marion,	A.B.	81	*Elgin, Ill.*
Herbert Leonard Maris,	Ph.B.		*George School, Pa.*
Frank Burr Marsh,	Ph.B.		*Big Rapids.*
Stanley Lawrence Marsh,	Ph.B.		*Gregory.*
Mary Estelle Marshall,	Ph.B.	90	*Chicago, Ill.*

Thomas Metlin Marshall,	B.L.	58	*Ann Arbor.*
William J. Marshall,			*Ann Arbor.*
Cora Oliver Martin,	B.L.	78	*Decatur, Ill.*
Lida Chenoweth Martin,	B.L.	90	*Decatur, Ill.*
Margaret Delia Mason,	B.L.	70	*Muskegon.*
Samuel Ottmar Mast,	B.L.	89	*Webster.*
Esther Pearl Matchett,	B.S.	31	*Ann Arbor.*
Lucile Virginia Matchett,	A.B.	8	*Ann Arbor.*
Charles Salmon Mathews,	A.B.	12	*Pontiac.*
Jacob Scott Matthews, Jr.,	Ph.B.	34	*Chicago, Ill.*
Percy Fulford Matthews,	B.L.		*Ontario, Cal.*
Walter Royal Matthews,	B.L.	45	*Ann Arbor.*
George Wendell Maxey,	B.L.		*Forest City, Pa.*
Thomas Gentry Mayhugh,			*Indianapolis, Ind.*
Maxwell Garfield Mayo,	B.S.		*Erie, Pa.*
Mabel Mead,	Ph.B.	40	*Battle Creek.*
Carl Francis Mehlhop,	B.S.	21	*Dubuque, Ia.*
Augusta Barbara Meiser,	Ph.B.	16	*Detroit.*
Royal Loren Melendy,	A.B.		*Howell.*
William Melville,			*Woodmere.*
Alfred Charles Meyer,	Ph.B.		*Chicago, Ill.*
Elisabetha Meyerl,	Ph.B.	75	*Grand Rapids.*
Charles William Mickens,	B.L.	104	*Ann Arbor.*
Jessie Curry Mighell,	Ph.B.	90	*Aurora, Ill.*
Florence Pansy Mildon,	B.L.	7	*Ishpeming.*
Anna Wykes Miller,	B.L.	24	*Grand Rapids.*
Frances Winifred Miller,	B.L.	90	*Kenosha, Wis.*
Gertrude Agnes Miller,	A.B.	21	*Bay City.*
Jessie Fredreka Miller,	Ph.B.	28	*Adrian.*
Katharine Cook Miller,	A.B.		*Ann Arbor.*
Louallen Frederick Miller,	B.S.	95	*Aurora, Ill.*
Malvina Amanda Milligan,	B.S.		*Calumet.*
Albert Taylor Mills,	Ph.B.	97	*Mount Palatine, Ill.*
Clara Mills,	B.S.	34	*Lake Linden.*
David Williams Mills,	B.L.	31	*Marysville.*
Genevieve Elisabeth Mills,	A.B.	104	*Ann Arbor.*
Laura Isadore Mills,	Ph.B.		*Ann Arbor.*
Lauren Elmer Mills,	Ph.B.		*Ann Arbor.*
Walter Herbert Mills,	B.S.		*[illegible]atur, Ill.*
Howard Daniel Minchin,	[illegible]	[illegible]	*[illegible] Rapids.*
Nellie Dustan Mingay,	[illegible]	[illegible]	[illegible]
Owen Joseph Mink,	[illegible]	[illegible]	[illegible]
William Comer Mitche	[illegible]	[illegible]	[illegible]

Leslie Johnson Montgomery,	Ph.B.		*Southfield.*
Stanley Dudley Montgomery,	B.L.	20	*Lansing.*
Paul Broadley Moody,	A.B.	95	*Detroit.*
Anna Moore,	B.L.	24	*Ann Arbor.*
Grace Leonora Moore,	Ph.B.	24	*Ann Arbor.*
Laura Moore,	A.B.	86	*Saint Clair.*
Alfred Butterfield Moran,	A.B.		*Detroit.*
Grace Morehouse,	Ph.B.		*Big Rapids.*
Charles Rufus Morey,	A.B.	96	*Charlotte.*
Clarence Burton Morrill,			*Battle Creek.*
Charles Clements Morris,	Ph.B.	95	*Bellbrook, O.*
Lucile Crane Morris,	B.L.	61	*Big Rapids.*
Roger Sylvester Morris,	A.B.	69	*Ann Arbor.*
Barbara Alexandrina Morrison,	B.S.	30	*Hancock.*
Winifred Lillian Morse,	Ph.B.	32	*Alpena.*
Frank Sharp Morsman,	A.B.	32	*Omaha, Neb.*
Eloise Morton,	Ph.B.	62	*Chelsea.*
Paul Moses,	Ph.B.	92	*Chicago, Ill.*
Philip Wilder Mothersill,	A.B.	31	*Engle, New Mex.*
Max Emil Mueller,	B.S.		*Chicago, Ill.*
Duray F. Munger,	A.B.	35	*Charlotte.*
James Frederick Munson,	B.S.		*Traverse City.*
Margaret Parthenia Murrell,	A.B.	8	*Decatur, Ill.*
Lena Frances Myers,	Ph.B.	25	*Ann Arbor.*
Max E. Neal,	B.L.	29	*Coldwater.*
Thomas Alvin Neal,	B.S.	83	*Ann Arbor.*
Bertram G. Nelson,	A.B.		*Chicago, Ill.*
Thomas Emery Newcomer,	A.B.		*Mount Morris, Ill.*
Edith Louise Nelson,	B.S.		*Bay City.*
Aaron G. Newell,	B.S.		*Yale.*
Eva May Nichols,	B.L.	24	*Chicago, Ill.*
Fanny Theresa Nichols,	B.L.	97	*Lansing.*
Clifford Lyman Niles,	Ph.B.	93	*Anamosa, Ia.*
Eva Lula Niles,	Ph.B.	71	*Ann Arbor.*
Marion Relief Nims,	A.B.	92	*Sand Beach.*
Walter Adams Nivling, Ph.C.,			*Sioux City, Ia.*
John Noordewier,	A.B.	92	*Jenison.*
Bessie Amalie North,	Ph.B.	27	*Lake Linden.*
Martha Lovisa Norton,			*Ann Arbor.*
Julius Jerry Nufer,	B.S.		*Whitehall.*
Bertha von Verson O'Brien,	B.L.	11	*Detroit.*
Gertrude Mary O'Brien,	Ph.B.	18	*Saginaw.*
Mary Elizabeth O'Connor,	Ph.B.	95	*Denver, Col.*

Byron Louis Odle,	B.L.		*Reed City.*
Guy Leroy Odle,	B.L.		*Reed City.*
Clara Sienna O'Hearn,	B.L.	41	*Ann Arbor.*
Gustavus Adolphus Ohlinger,	A.B.	105	*Ann Arbor.*
Paul Oliver,	B.S.	97	*Chicago, Ill.*
Genevieve Delony O'Neill,	Ph.B.	21	*Ann Arbor.*
John Fisher Oram,	B.L.		*Shamokin, Pa.*
Donald Cornell Osborn,	B.L.	15	*Kalamazoo.*
Josephine Gertrude Osborne,	Ph.B.	30	*Lansing.*
Joe Carlos Osburn,	Ph.B.	93	*Owosso.*
James Edward O'Sullivan,	B.S.		*Port Huron.*
Alice Moseley Paddock,	Ph.B.	37	*Moline, Ill.*
Ralph Hugh Page,	B.S.	109	*Chicago, Ill.*
Henriette Pagelsen,			*Grand Haven.*
Fannie Vera Pailthorp,	B.L.		*Petoskey.*
Bertha Marian Palmer,	B.S.		*Ann Arbor.*
Jessie Mabel Palmer,	Ph.B.	68	*Duluth, Minn.*
Mabel Esther Palmer,	B.L.	91	*Ann Arbor.*
Mary Alberta Palmer,	B.S.		*Saginaw.*
Flora Estelle Parker,	B.L.	91	*Detroit.*
Grace Electa Parker,	B.L.		*Detroit.*
Mabel Lillian Parker,	A.B.	62	*Chicago, Ill.*
Cora Josephine Parkhurst,	A.B.	57	*Barnard, Vt.*
Linus Scott Parmelee,	B.S.	60	*Charlevoix.*
Christopher Gregg Parnell,	B.L.	6	*Calumet.*
Hugh Morton Parrish,	A.B.		*Naples, N. Y.*
Hartley Curtis Parsons,			*Chardon, O.*
Albert Eugene Patch,			*Moline, Ill.*
Caroline Esther Pattengill,	A.B.	79	*Ann Arbor.*
George Fred Paul,	A.B.	104	*Peoria, Ill.*
Annie Arletta Pearce,	Ph.B.	36	*Lake Linden.*
Floyd O. Pease,			*Flushing.*
Grace Darling Peele,	B.S.	89	*Jersey City, N. J.*
Carl Homer Pelton,	A.B.	65	*Oakwood.*
Walter Scott Penfield,	A.B.	60	*Auburn, Ind.*
Olive May Pepper,	B.S.		*Ann Arbor.*
Edith Marion Perrigo,	Ph.B.		*Allegan.*
Oliver Winfred Perrin,	B.L.	28	*Denton.*
Vive Bird Perrin,	Ph.B.		*Detroit.*
Harlow Stafford Person,	Ph.B.	64	*Lansing.*
Frank Peshick,	B.L.	30	*Saginaw.*
Florence Peters,	Ph.B.		*Ann Arbor.*
Frances Lillian Petit,	A.B.	93	*Port Huron.*

Sybil Matilda Pettee,	Ph.B.	52	*Ann Arbor.*
Margaret McPherson Pettigrew,	B.L.	17	*Ann Arbor.*
Adoniram Judson Pettis,	B.L.	61	*Flint.*
Benjamin Rice Phelps,	Ph.B.	30	*Greenville.*
Nancy Seymour Phelps,	A.B.	98	*Ann Arbor.*
Maud Philips,			*Ann Arbor.*
Julia Magruder Phillips,	A.B.	25	*Leavenworth, Kan.*
Olive Blanche Phillips,	B.L.	86	*Kalamazoo.*
Lue Della Pickering,			*Boone, Ia.*
John Lamond Pierce,	Ph.B.	28	*Flint.*
Walter Boughton Pitkin,	A.B.	61	*Detroit.*
Sadie Augusta Platt,	Ph.B.	67	*Saint Joseph.*
Raymond Lucas Pleak,	B.L.	4	*Greensburg, Ind.*
Edith Hawkes Plummer,	B.S.	13	*Benton Harbor.*
Lettie Jeannette Poe,	B.L.	61	*Ashland, O.*
Henry Lebrun Poinier,	A.B.		*Detroit.*
Jane Viola Pollack,	Ph.B.	33	*Chicago, Ill.*
Beatrice Pomeroy,	B.S.	28	*Kalamazoo.*
Louis Earl Pomeroy,	B.S.		*Holly.*
Edith Merrill Popkins,			*Ann Arbor.*
Frank Ira Post,	B.S.	96	*Coldwater.*
Frank Fraser Potter,	B.S.		*Mount Pleasant.*
Kennedy Loomis Potter,	B.L.		*Jackson.*
Mary Rebecca Powers,	Ph.B.	32	*Hastings.*
Emily Hortensia Pratt,	A.B.	37	*Grand Rapids.*
John Harcourt Prentis,	B.L.	53	*Detroit.*
Albert F. Probst,	B.L.		*Ann Arbor.*
Lindley Pyle,	B.S.	30	*Willowdale, Pa.*
Anna Mae Quello,	B.L.	26	*Calumet.*
Irving Tomlinson Raab,	A.B.	72	*Flint.*
Ray Arah Randall,	B.S.	56	*Ann Arbor.*
Vischer Alonzo Randall,	B.S.		*Akron, O.*
Mabelle Fitz Randolph,			*Toledo, O.*
Vera Lucille Rankin,	A.B.	58	*Lapeer.*
Charles Brereton Rarden,	B.S.		*Greenville.*
Lewis Cass Rauch,	B.L.	58	*Spring Arbor.*
Alonzo Herbert Raymond,	A.B.	50	*Detroit.*
Rena Bowne Raymond,	A.B.	73	*Ann Arbor.*
James Monroe Reasoner,	A.B.	29	*Lansing.*
Robert Uriah Redpath,	Ph.B.		*Petoskey.*
Howard Sprague Reed,			*North East, Pa.*
Annie Reid,	B.L.		*Alma.*
Cora Belle Reid,			*Port Huron.*

Mary Lyle Reid,			*Champion.*
Rodolphe Ransom Reilly,	B.L.	90	*Chicago, Ill.*
Frank Nicholas Renaud,	Ph.B.	13	*Detroit.*
Jessie Mae Reynolds,	Ph.B.	28	*Grand Haven.*
John Whitcome Reynolds,			*Detroit.*
Gracia Beatrice Rhead,	B.S.	22	*Ann Arbor.*
Frederick Eugene Rheinfrank,	B.S.	93	*Perrysburg, O.*
Anna Louise Rhodes,	Ph.B.	49	*Ada.*
Burt Clements Rice,			*Ann Arbor.*
Nellie Fuller Rice,	A.B.	90	*Grand Rapids.*
Louise Emily Richard,			*Ann Arbor.*
Howard Richardson,	B.S.	30	*Saginaw.*
Ruby Ella Richardson,	Ph.B.	57	*Detroit.*
Henry Jasper Richmond,	A.B.	5	*Waterford.*
Jesse Jay Ricks,	B.S.	30	*Taylorville, Ill.*
Charles Augustus Riegelman,	A.B.	93	*New York, N. Y.*
Irving Washington Riegelman,	B.L.	92	*New York, N. Y.*
Laura Minnie Rinkle,	Ph.B.	54	*Boonville, N. Y.*
Clarence Bingham Ripley,	B.S.	58	*Hinsdale, Ill.*
Edwin Shepherd Ripley,	Ph.B.	33	*Hinsdale, Ill.*
Walter John Risley,	B.S.	76	*Lyon, O.*
Royal Jacob Ritter,			*Cheboygan.*
Eldred George Robbins,			*Ishpeming.*
Ida Estelle Roberts,	B.L.	60	*Flushing.*
Marian Stevens Roberts,	A.B.	30	*Traverse City.*
Christine Grace Robertson,	A.B.	68	*Detroit.*
Georgia Oriana Robertson,			*Kansas City, Mo.*
Jessie May Robertson,	Ph.B.	56	*Petoskey.*
Harry Milton Robins,	A.B.	68	*Howell.*
Hugo Guy Robinson,	Ph.B.	16	*Detroit.*
Joseph Wright Robinson,	A.B.	91	*Mason.*
Thomas Linton Robinson,	Ph.B.	74	*Ravenna, O.*
Winnifred Josephine Robinson,	B.S.	95	*Battle Creek.*
Clifford Griffith Roe,	A.B.	95	*Ann Arbor.*
Jessie Louise Roe,	A.B.	9	*Ann Arbor.*
Algenore Isabelle Roehm,	B.S.		*Calumet.*
Louise Marie Roesch,	B.S.		*Chicago, Ill.*
Alta Jennie Rogers,			*Ann Arbor.*
Anna Merriman Rogers,	Ph.B.	28	*Aurora, Ill.*
George E. Rogers,	B.S.	93	*Ann Arbor.*
Bessie Cotter Ronan,	Ph.B.	32	*Ann Arbo*
Alfred Birch Roseboom,	A.B.	16	*Chicag*
Blanche Irene Rosenbaum,	Ph.B.		*Kala*

Maxwell Wright Ross,	Ph.B.	18	*Perrysburg, O.*
August Henry Roth,	B.S.		*Erie, Pa.*
Olive Josephine Rouech,	A.B.	39	*Bay City.*
†Ashley Davenport Rowe,			*Lansing.*
Elizabeth Morrison Rowland,	A.B.		*Grand Rapids.*
Ralph Loveland Roys,	Ph.B.	74	*Saginaw.*
Rose Ella Rulison,	B.L.	21	*Ann Arbor.*
Lucy Hayes Russell,	B.L.	54	*Hart.*
William David Russell,			*Detroit.*
Amasa Miller Rust,	B.S.	31	*Saginaw, West Side.*
Camilla Teresa Ryan,	Ph.B.	4	*Ann Arbor.*
Charles Ryan,	B.S.		*Fort Collins, Col.*
Sadie P. Ryan,	A.B.	95	*Ann Arbor.*
Ada Murray Safford,	Ph.B.	32	*Plymouth.*
Helen May St. John,	Ph.B.	90	*Ann Arbor.*
Ross T. Sanford,	B.L.	21	*Greenville.*
Dorothy Mae Sass,	B.S.		*Chicago, Ill.*
Wirt Ira Savery,	B.S.	26	*Salem.*
Margaret Agnes Scallon,	B.S.	29	*Hancock.*
Julia Catherine Schacht,	B.L.	41	*Erie, Pa.*
Ida Marie Schaible,	B.L.	29	*Ann Arbor.*
Otto Sorg Schairer,	B.S.	20	*Saline.*
Philip Louis Schenk,	A.B.		*Ann Arbor.*
Edith Louise Scheurman,	B.S.	3	*Saginaw.*
Guy Burton Schiller,	Ph.B.	47	*Niles.*
Melitta Schmemann,	Ph.B.	30	*Delray.*
George Fontaine Schmid,	Ph.B.	14	*Chicago, Ill.*
Edwin Lee Schooler,			*Cheyenne, Wyo.*
Katherine Schroeder,	B.L.	23	*Calumet.*
Daniel Dwight Schurtz,	A.B.		*Ann Arbor.*
Vera Zoe Schurtz,	A.B.	57	*Ann Arbor.*
Sophia Margaret Schwarz,	Ph.B.	73	*Aurora, Ill.*
Clara Marie Scott,	B.S.	62	*Vicksburg.*
Eugene Watson Scott,			*Rushville, Ill.*
Ruth Gage Scott,	Ph.B.	28	*Duluth, Minn.*
Daniel McGregor Scotten,	B.L.		*Detroit.*
Grace Edith Seekell,	A.B.	31	*Grand Rapids.*
Harley Halsted Seeley,	B.L.	85	*Owosso.*
Laura Kinne Seeley,	Ph.B.	20	*Caro.*
Elisha Sipke Sevensma,	A.B.	8	*Grand Rapids.*
Arthur Christian Seyfarth,	B.L.		*Blue Island, Ill.*
Gustavus Adolphus Shallberg,			*Moline, Ill.*
Kirk Shawgo,	B.L.	53	*Quincy, Ill.*

Bertha Irene Sheldon,			*Ann Arbor.*
Louise Shepard,	Ph.B.	92	*Battle Creek.*
Gem Sherman,	A.B.	11	*Marquette.*
Lizzie Lorett Sherman,	Ph.B.	67	*Muskegon.*
Clark William Shipman,	B.L.	28	*Corunna.*
Thomas Trufant Shoemaker,	Ph.B.	67	*Mount Clemens.*
Esther Wilhoit Shoot,	Ph.B.	24	*Charleston, Ill.*
Charles Cadet Shoyer,	B.L.	31	*Leavenworth, Kan.*
Alfred Earl Shutes,	Ph.B.	28	*Schoolcraft.*
Cora Isabell Sibley,	Ph.B.		*Muskegon.*
Lucie Abigail Sill,	A.B.	96	*Ann Arbor.*
Mary Matilda Sincock,	Ph.B.	28	*Ishpeming.*
Charles Sisam,	Ph.B.		*Sloan, Ia.*
Charles Henry Slater,	Ph.B.	60	*Hinckley, Ill.*
Martha Anne Slater,	Ph.B.	91	*Ann Arbor.*
David Harry Slauson,	B.S.		*Greenville.*
Flora Slayton,	A.B.	64	*Grand Rapids.*
Genevieve Sloan,	Ph.B.	60	*Chicago, Ill.*
Harrison Standish Smalley,	A.B.	64	*Chicago, Ill.*
Clifford Charles Smith,	Ph.B.		*Toledo, O.*
Edward Dumont Smith,	B.S.	63	*Nashville.*
Herbert Caldwell Smith,	Ph.B.		*Evanston, Ill.*
Herbert LeRoy Smith,	B.L.		*Cassopolis.*
Lena Rogers Smith,	A.B.		*Lansing.*
Leslie Gifford Smith,	Ph.B.		*Ann Arbor.*
Lottie Lee Smith,	A.B.	12	*Lansing.*
Roy Burnett Smith,	B.S.	104	*Ann Arbor.*
Ruth Louise Smith,	B.S.	88	*Marshall.*
Etta Northey Snell,	Ph.B.		*South Lake Linden.*
John Henry Snook,	A.B.	13	*Rochester.*
Neil Worthington Snow,	B.S.		*Detroit.*
Edna Gai Solis,	B.S.		*Houghton.*
Mabel Sutton Spencer,	Ph.B.	32	*Belding.*
John Gordon Spofford,	B.S.	6	*Coldwater.*
Mary Justina Spottswood,	A.B.	36	*Winnebago, Ill.*
Vere Nutting Sprague,			*Orange, Mass.*
LaVerne Ward Spring,	B.L.	64	*Coldwater.*
Robert Edmund Springett,			*Almont.*
Joseph Gardner Standart,			*Detroit.*
Arthur Dickey Stansell,	B.L.	87	*Detroit.*
Francis Morley Stead,	A.B.	96	*Tecumseh.*
Lilian Anna Steele,	A.B.	61	*Maywood,*
Mary Salome Steinmetz,			*Philadelp*

Wellington D. Sterling,	B.L.	93	*Ann Arbor.*
David Louis Stern,	B.S.	16	*Chicago, Ill.*
Don Search Stevens,	B.L.	24	*Ann Arbor.*
Forris de Ayre Stevens,	Ph.B.	11	*Grand Rapids.*
Herman Campbell Stevens,	B.S.	32	*Elyria, O.*
Herman LeRoy Stevens,	Ph.B.	78	*Port Huron.*
Walter Russell Stevens,	B.L.		*Port Huron.*
Bertha Stewart,	B.L.		*Flint.*
John Sheeler Stewart,			*Rock Island, Ill.*
Sybil Stewart,	Ph.B.		*Wardner, Idaho.*
Marion Stickney,	B.L.	65	*Grand Haven.*
Lyman Edgar Stoddard,	Ph.B.		*Bay City.*
Carrie Lucile Stone,	A.B.	8	*Ann Arbor.*
Willard John Stone,	B.S.	83	*Gloversville, N. Y.*
Clara Dorothy Stonebraker,	Ph.B.	62	*Bay City.*
Grace Alma Strang,	A.B.	31	*Ypsilanti.*
James Strasburg,	Ph.B.	4	*Chicago, Ill.*
Howard Streeter,	A.B.	28	*Calumet.*
Nina Streeter,	Ph.B.		*Calumet.*
Orno Dale Strong,	Ph.B.	64	*Tacoma, Wash.*
George H. Stuart,	B.S.	20	*Schoolcraft.*
Magdalena Stukey,			*Bryan, O.*
Alice Kerr Sturm,	B.S.	23	*Saline.*
Georgia Suber,	B.S.		*Los Angeles, Cal.*
Anna Zita Sullivan,	B.S.	92	*Ann Arbor.*
Carl Sundstrom,	B.S.	94	*Trenton.*
Elizabeth Sundstrom,	B.S.	28	*Trenton.*
Clarence Eugene Sutliff,	B.L.		*Detroit.*
William Maynard Swan,	Ph.B.	41	*Detroit.*
Norman Sweat,	B.S.	63	*Ann Arbor.*
Elizabeth Blanche Swift,	A.B.	59	*Battle Creek.*
Grace Isabel Swindler,	A.B.	74	*Ann Arbor.*
Edith Emeline Swinton,	Ph.B.	32	*Calumet.*
Parthenia Sykes,	A.B.	64	*Ann Arbor.*
Alfred Henry Syverson,	A.B.	64	*Lead, S. Dak.*
Maude Tabor,	Ph.B.	72	*Lawton.*
James Moses Taggart,	Ph.B.	30	*Grand Rapids.*
Harry Harvey Talcott,	A.B.	32	*Des Plaines, Ill.*
William Wilson Talcott,	Ph.B.	21	*Chicago, Ill.*
Thomas Arthur Taper,	B.S.	61	*Lake Linden.*
Margaret Lloyd Tatlock,	A.B.	53	*Ann Arbor.*
Arthur Ostrander Taylor,	A.B.	44	*Ann Arbor.*
Emma Russell Taylor,			*Almont.*

Ina Pamella Taylor,	Ph.B.	94	*Ann Arbor.*
James Stuart Taylor,	B.S.	94	*Almont.*
John Backus Taylor,	B.S.	60	*Wheelersburg, O.*
Leslie Joseph Tefft,	Ph.B.	29	*Elgin, Ill.*
Earle Melvin Terry,	A.B.		*Battle Creek.*
Maude Hayes Thayer,	A.B.	94	*Grand Rapids.*
Percy Folsom Thomas,	B.L.	35	*Cassopolis.*
Clarence Fred Thompson,			*Romeo.*
Edgar Campbell Thompson,	A.B.	32	*Detroit.*
Edward Avery Thompson,	Ph.B.	60	*Belvidere, Ill.*
Fred Orton Thompson,	A.B.		*Pontiac.*
Jean Elicia Thompson,			*Pontiac.*
Nelson Walter Thompson,	B.S.	91	*Detroit.*
T. Letitia Thompson,	Ph.B.	100	*Saranac.*
Nellie Thomson,	B.L.	95	*Ann Arbor.*
Alice Margaret Thorne,	B.L.	73	*Toledo, O.*
Olin Merchant Thrasher,			*Salem.*
Jefferson Gage Thurber,	Ph.B.	95	*Detroit.*
Frederic Will Thurnau,	Ph.B.		*Chicago, Ill.*
Harry Conrad Thurnau,	A.B.	92	*Chicago, Ill.*
Alice Emeline Thurston,	Ph.B.	24	*Rockford, Ill.*
Jesse Milford Tice,			*Richmond.*
Bertha May Todd,	Ph.B.	32	*Aurora, Ill.*
Edith Edna Todt,	B.L.	3	*Detroit.*
Fred J. Sherman Tooze,	B.S.	56	*Ann Arbor.*
Eleanor Worthington Towar,			*Ann Arbor.*
Carrie L. Tower,	B.L.	87	*Milford.*
Mabel Trask,	B.L.	39	*Ann Arbor.*
George Nelson Tremper,	A.B.	32	*Pontiac.*
Oscar Stuart Trumble,	A.B.		*Davison.*
Elmer Harvey Try,	Ph.B.		*Three Rivers.*
Charles Thomas Tryon,	A.B.	86	*Bay City.*
Claude Thorne Tuck,	B.L.		*Belding.*
Henry Tupper,	B.L.	90	*Maple Park, Ill.*
Clara Turner,	Ph.B.	87	*Battle Creek.*
James Turner,	B.S.		*Lansing.*
Leigh Martin Turner,	A.B.	62	*Battle Creek.*
Lila Turner,	A.B.	104	*Battle Creek.*
Scott Turner,	B.S.		*Lansi*
Minnie Sturdevant Tyler,			
Leslie Ullrich,	Ph.B.		
Stuart Wells Utley,	Ph.B.		
Edson Blaine Valentine.	Ph.B.		

Ralph Houston Van Cleve,	Ph.B.	15	*Marinette, Wis.*
Frank Vandeburg,	Ph.B.	86	*Ypsilanti.*
Aurelia Louise Vandenboom,	Ph.B.		*Marquette.*
Rena Rae Van Fossen,			*Paw Paw.*
LaRue Van Hook,	A.B.	97	*Chicago, Ill.*
Alexander Hamilton VanKeuren,	A.B.		*Howell.*
Charles VanKeuren,	A.B.	30	*Howell.*
Edith Augusta Van Kleeck,	Ph.B.	90	*Bay City.*
Mabel Rebecca Van Kleek,	A.B.	94	*Ann Arbor.*
Henry Van Slooten,	A.B.	90	*Holland.*
Lisla Alice Van Valkenburg,	A.B.	94	*Ann Arbor.*
John Walter Vaughan,	A.B.		*Ann Arbor.*
Victor Clarence Vaughan, Jr.,	A.B.	63	*Ann Arbor.*
Gertrude Elisabeth Vaughn,	A.B.	90	*Ann Arbor.*
James Alexander Veasey,			*Jeffersonville, Ind.*
William Henry Veenboer,	B.S.	31	*Grand Rapids.*
Leonard D'Ooge Verdier,	A.B.	92	*Grand Rapids.*
Sylvia Sanders Videtto,	A.B.	82	*Ann Arbor.*
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Jessie Millicent Vivian,			*Monroe.*
Oscar William Voedisch,	B.L.	27	*Chicago, Ill.*
August Lipkue Volkers,			*Freeport, Ill.*
William Vought,	Ph.B.	80	*Michigan City, Ind.*
Evelyn C. Vyn,	A.B.	62	*Grand Rapids.*
Nettie Eunice Wagner,	Ph.B.	26	*Belding.*
Frederick Rice Waldron,	A.B.	92	*Jackson.*
Charlotte Hall Walker,	A.B.	68	*Ann Arbor.*
Florence Walker,	Ph.B.	63	*Des Moines, Ia.*
Lillian Vivian Wallace,	Ph.B.	30	*Memphis, Tenn.*
May Walmsley,	Ph.B.	102	*LaGrange, Ill.*
Thomas Fleming Walsh,	A.B.		*Port Huron.*
Beulah Claire Walters,			*Shawnee, Okla.*
Max Walther,	Ph.B.	69	*Saginaw.*
William Frederick Ward,			*Parowan, Utah.*
Lyford Wilson Warfield,	B.L.	60	*Des Moines, Ia.*
Eloise Waring,	A.B.	37	*Tecumseh.*
Martha Marilla Warner,			*Ypsilanti.*
Selah Brown Warren,	Ph.B.	54	*Detroit.*
Mattie Louisa Waterman,	Ph.B.		*Alpine.*
Dwight Everett Watkins,	Ph.B.	24	*Ann Arbor.*
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Clyde Irvin Webster,	Ph.B.	92	*Eaton Rapids.*

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Leo Weiss,	B.L.	64	*Detroit.*
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Vernon Dwight Wells,	B.S.	17	*Manistee.*
Welcome L. Wells,	B.S.	58	*Manistee.*
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Hugh White,	Ph.B.	91	*Lapeer.*
Milo Armstrong White,	B.S.		*Fremont.*
Oliver Simeon White,	B.S.	20	*Jonesville.*
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Jennie Belle Wilcox,	Ph.B.	22	*Manistee.*
Nellie Wilcox,	Ph.B.	87	*Corunna.*
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Susan Elizabeth Wiley,			*Detroit.*
Caroline D. Wilkins,	B.L.		*Flushing.*
Ethel May Williams,	Ph.B.	62	*Grand Rapids.*
Ethel May Williams,	B.L.		*Ironwood.*
Ethelberta Williams,	B.L.	89	*Ann Arbor.*
Harrison Gaylord Williams,	A.B.	30	*Lapeer.*
William Kirkwood Williams,	A.B.	30	*Lapeer.*
Anna Louise Williamson,	B.S.	29	*Tecumseh.*
Henry Wyatt Willis,	A.B.		*Buffalo, N. Y.*
Clara Mildred Willits,	A.B.	56	*Grayling.*
Levi Philip Ray Willoughby,	A.B.	72	*Detroit.*
Ida May Wimer,	B.L.	83	*Coldwater.*
Milton W. Wimer,	B.L.	103	*Coldwater.*
Ernest Cyril Wineman,	B.L.		*Des M* [illegible]
Henry Wineman,	Ph.B.	24	*Detroit.*
Mabel Gundrum Wing,	Ph.B.	[illegible]	[illegible]

John Arthur Winter,	B.S.		*Negaunee.*
Arthur Robert Wistrand,	B.L.	95	*Menominee.*
Winthrop Withington,	Ph.B.		*Jackson.*
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Junius Boyd Wood,	Ph.B.	64	*Elgin, Ill.*
Mabel Louise Wood,			*Ann Arbor.*
Rosooe Mark Wood,	A.B.	88	*Saline.*
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Bertha May Woodin,			*Ann Arbor.*
Susan Maude Woodmansee,			*Ann Arbor.*
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Jennie Morgan Woods,	A.B.	69	*Ann Arbor.*
Guilford Worth Woodworth,	B.L.		*Java, N. Y.*
Roy Church Woodworth,	B.L.	66	*Kansas City, Mo.*
Bernice Worth,			*Benton Harbor.*
Lynne Worth,			*Benton Harbor.*
Bertha Wright,	B.S.	70	*Ishpeming.*
Martha Elizabeth Wyant,	Ph.B.	105	*Sigourney, Ia.*
Elizabeth Wylie,	Ph.B.	61	*Saginaw.*
Leonora Yeager,	Ph.B.	23	*Kansas City, Mo.*
Fannie Louise Young,	B.S.	23	*Vicksburg.*
Greta Belle Young,	A.B.	88	*Nashville.*
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Lafayette Young, Jr.,	Ph.B.	64	*Des Moines, Ia.*
Theodore Zbinden,	A.B.	112	*Toledo, O.*
Cherry Zimmerman,	B.S.	16	*Chicago, Ill.*
Daniel Forbes Zimmerman,	B.S.	16	*Ann Arbor.*
Karl Wilhelm Zimmerschied,	B.L.	8	*Kansas City, Mo.*
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AUGUSTUS TROWBRIDGE
COLMAN D. FRANK, [illegible]

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HORACE T. PURFIELD.
WILLIAM R. McDONALD.
FREDERICK J. WILBUR.

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Frank Noble Savage, B.S.[C.E.], 1898,	*Chicago, Ill.*

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Edwin John Rosencrans, B.S.[C.E.], 1893,	*Buffalo, N. Y.*
Silas Hiram Woodard, B.S.[C.E.], 1896,	*Detroit.*

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Emanuel Anderson,	M.	102	*Chicago, Ill.*
Leslie Douglass Anderson,	M.	43	*Ishpeming.*
Emilio Arizpe,	M.	41	*Saltillo, Mexico.*
Aikman Armstrong,	M.	31	*Detroit.*
James Chivis Armstrong,	E.	97	*Detroit.*

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* The letters in the column headed COURSE indicate the line of work the student has chosen to pursue; C denoting civil engineering; M, mechanical engineering; E, electrical engineering. As students are not asked to make choice of course until the beginning of their second year, the absence of a letter indicates that the student is in his first year, or, in a few cases, that he is taking miscellaneous studies without being registered as a candidate for any degree. The figures in the column headed CREDIT indicate the number of hours of work taken by candidates for degrees prior to the beginning of the current academic year, 1898–99, and completed without conditions, or credited to them on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. Compare page 150.

Frederic Everart Arnold,	M.	114	*Ann Arbor.*
Norwood Brayman Ayers,	E.	96	*Omaha, Neb.*
Bert Wise Bachtel,			*Flint.*
William Porter Baker,	E.	105	*Woodville, O.*
Wareham Strong Baldwin,	E.	24	*Detroit.*
Arthur Merritt Barrett,			*Chicago, Ill.*
Benjamin Warren Batchelder,	M.	31	*Marinette, Wis.*
Harry Ira Bates,			*Detroit.*
Mark Brewer Beattie,	E.	60	*Ann Arbor.*
Elias Hyrum Beckstrand,	E.	56	*Meadow, Utah.*
Edward Lewis Benedict,	M.	39	*Birmingham.*
Arthur Hart Bennett,		9	*Detroit.*
John Walter Frink Bennett,	C.	110	*Austin, Ill.*
Claude Kingsley Bentley,	E.	66	*Owosso.*
James Rowland Bibbins,	E.	102	*Detroit.*
Austin Perry Biggs,	M.	36	*Ann Arbor.*
August Emanuel Bjork,	E.	22	*Chicago, Ill.*
James Frederick Bourquin,	M.	17	*Detroit.*
Fred Norman Bradley,	M.	61	*Joliet, Ill.*
Homer Britton,		6	*Friendship, N. Y.*
Chason Winslow Brooks,		5	*Chicago, Ill.*
Fred Walter Brown,	M.	24	*Flint.*
Frederick Lewis Browne,	M.	100	*Bay City.*
John Arthur Bryant,			*Mount Clemens.*
Joseph Aldrich Bursley,	M.	96	*Fort Wayne, Ind.*
Philip Everette Bursley,			*Fort Wayne, Ind.*
Joseph Wallace Busch,	E.	77	*Marquette.*
Herbert Ward Carpenter,	M.	33	*Orion.*
Thomas Henry Carver,			*Valparaiso, Ind.*
David Ferdinand Castilla,	M.	89	*C. Ciénegas, Coahuila,* [*Mex.*
William Ninde Chaffee,			*Detroit.*
Cornelius King Chapin,	E.	41	*Lansing.*
Markham Cheever,		6	*Ann Arbor.*
Paul Cheever,	M.	67	*Ann Arbor.*
William Griswold Chesebrough,	M.	82	*Detroit.*
Clarence Howard Clark,	M.	39	*Saginaw, West Side.*
Carlos Carleton Cleverdon,	M.	66	*Austin, Ill.*
James Walter Clift,	M.	109	*Washington, D. C.*
John Wesley Coates,			*Flint.*
Stephen Prentis Cobb,	C.	70	*Kalamazoo.*
Harry Blackstone Cole,			*Pontiac.*
Edwin Warren [illegible]	C.	96	*Independence, Ia.*
Charles Vaug[illegible]			*Flint.*

Frank Eugene Cooley,		6	*Lansing.*
William Lee Cooper,	M.	93	*Saginaw.*
William Cowie,	M.	17	*Detroit.*
William Henry Crago,	C.	33	*Iron Mountain.*
Frederick William Cummer,			*Cadillac.*
Walter Turney Curtis,	C.	111	*Detroit.*
Ralph Emerson Darling,	E.	40	*Ann Arbor.*
Jenaro Davila,			*Monterey, Mex.*
Charles Baker Davis,	C.	27	*Ann Arbor.*
Albert Clifford DeLong,			*Bradley, Ill.*
Burt J. Denman,	E.	102	*Toledo, O.*
Ward Arnold Detwiler,			*Owosso.*
Claude Rogers Dickey,		29	*Albion.*
John Leo Dickey,		8	*Ann Arbor.*
Bartlett Chase Dickinson,	C.	83	*Kalamazoo.*
Harry Hammond Dickinson,	E.	62	*Nashville.*
Paul Andrew Dratz,	M.	68	*Muskegon.*
John Hathaway Dressel,	E.	88	*Kane, Ill.*
Walter Dwight Edgar,	E.	58	*Green Oak.*
Gustav Bernhard Eggert,	M.	56	*Saginaw.*
Eber J. Ellsworth,	C.	67	*Ivarea, Pa.*
John Orne Emerson,		39	*Jackson.*
Emmet Emons Ewers,		11	*Morrison, Col.*
Donald McHardy Ferguson,		4	*Almont.*
Harold Richards Finney,			*Detroit.*
David Gerould Fisher,	C.	70	*Kalamazoo.*
John Brewill Fisher,	E.	39	*Detroit.*
Lucian Day Fite,	M.		*Georgetown, O.*
Hubert Sterling Frazier,			*Otsego.*
Frederic Fridolph Fredlund,	M.	35	*Ann Arbor.*
George Herbert Gibson,	E.	111	*Northville.*
Harry Wilson Gilmore, Ph.B., *Penn College,*		20	*Oskaloosa, Ia.*
Andrew Grabenstein,	C.	62	*Lake Linden.*
Lewis Merritt Gram,	C.	39	*Menominee.*
Edwin Charles Hall, A.B., *Ripon College,*	C.	37	*Ripon, Wis.*
Robert Morrison Hall,	M.	14	*Three Rivers.*
Myram Hance Hammond,	M.	55	*Vermontville.*
Frederick Cyril Hannan,	C.	100	*Chicago, Ill.*
*Burr Hardy,	M.	93	*Ann Arbor.*
Emery Eugene Harris,	M.	27	*Utica.*

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*Deceased.

George Henry Harris,			*South Rockwood.*
Harmon Augustus Harris,	E.	94	*Chicago, Ill.*
Sanford Frank Harris,	E.	92	*Chicago, Ill.*
Harry D. Harting,	C.	65	*Grand Rapids.*
Milton Charles Hartman,	E.	99	*Chicago, Ill.*
James Edward Haurahan,			*Buffalo, N. Y.*
Orra Emmet Heffelbower,	C.	90	*Ann Arbor.*
Guy Potter Henry,		44	*Ann Arbor.*
James Hervey Herron,			*Erie, Pa.*
George Samuel Hill,			*Hillsdale.*
Walter Hugh Himes,	M.	38	*Ann Arbor.*
Clinton Jerome Hixson,	E.	99	*Dupont, O.*
Stephen A. Hoag,		6	*Ionia.*
Alpheus Elton Holcomb,	M.	40	*Fenton.*
Frederick Ruthrauff Hoover,	C.	80	*Kansas City, Mo.*
William Christian Hornberger,	M.	39	*Lansing.*
James LeGrand Horth,	M.	83	*Geneva, N. Y.*
Raymond Fuller Horton,	C.	32	*Detroit.*
Lewis Glasgow Howlett,	E.	104	*Trinidad, Col.*
George Deming Hudnutt,		52	*Big Rapids.*
Edwin Adolphus Hughes,	E.	99	*Elkhart, Ind.*
Harry Henry Hughson,	E.	28	*Chicago, Ill.*
Henry Imhof,	M.	40	*Chicago, Ill.*
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Ernest Hiram Jacobs,	E.	80	*Owosso.*
Herbert Arthur Johnston,	C.	79	*Kalamazoo.*
Edgar Weber Kiefer,	M.	40	*Detroit.*
William Leasure Kimmel,	E.	81	*Ypsilanti.*
Edmund Peaslee Kinne,		45	*Ypsilanti.*
William Wick Kittleman, Jr.,	E.	23	*Detroit.*
Alfred Henderson Knight,	M.	65	*Flint.*
Otto Adolph Krause,	M.	70	*Grand Rapids.*
Robert Ebenezer Kremers, A.B., *Hope College*,	C.	69	*Holland.*
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Forest Henry Lancashire,	M.	24	*Detroit.*
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Charles Gillett Leeson,	M.	35	*Manchester.*
Willy Lehnartz,	M.	88	*Grand Rapids.*
Harlow Lewis,		6	*Dubuque, Ia.*
Ralph Garfield Lewis,	M.	47	*Ann Arbor.*
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Peter Martin Louwerse,			*Grand Rapids.*
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Guy Webster Lunn,	E.	76	*Stanton.*
Thomas Edward Lynch,			*Wiscoy, Minn.*
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Roylance Russell McCloy,		8	*Bay City.*
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Walter Mac Gregor,	M.	60	*Bay City.*
William Meek McKee,	E.	96	*Chillicothe, O.*
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Merritt Charles McNeil,			*El Dorado Springs,*
William Harrison Malone,		6	*Bay City.* [*Mo*
Royal John Mansfield,	C.	97	*Bay City.*
Harry Stone Marsh,	E.	68	*Detroit.*
Percy William Martin,		2	*Bay City.*
Shigeru Matsuyama,	M.	70	*Tokio, Japan.*
Walter Ballard Maurice,	C.	64	*Detroit.*
Augustus Joseph Mayworm,	M.	99	*Detroit.*
Ezra Burton Mead,	M.	61	*Grand Rapids.*
Robert Hall Merrill,			*Grand Rapids.*
William Lincoln Miggett,	M.	90	*Massillon, O.*
Norman Clarence Miller,			*Plymouth.*
William Cook Miller,	E.	70	*Ann Arbor.*
John Theodore Mountain,	E.	93	*Chicago, Ill.*
Melville Richard Moxley,	C.	62	*Saginaw.*
Howard Alexander Murray			*White Pigeon.*
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Ralph Macomber Myers,	M.	34	*Muir.*
Perry H. Mykins,			*Battle Creek.*
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Frederick Nelson Nelles,	M.	66	*Bay City.*
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James Tainter Noble,	M.	79	*Rice Lake, Wis.*
Arthur Willcox Norton,	M.	70	*Chicago, Ill.*
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Robert Burns Otis,			*Ann Arbor.*
Floyd J. Page,	M.	47	*Dexter.*
John Castelar Parker,	M.	44	*Detroit.*
Arthur Wheeler Plum,	M.	56	*West Bay City.*
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A. Clare Reed,	C.	65	*Joliet, Ill.*
Ard Ezra Richardson,	E.	92	*Saginaw.*
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Wellington Roberts,	C.	83	*Rosedale.*
Ralph Moross Roosevelt,		4	*Saginaw.*
David Nathaniel Rosen,	M.	99	*Muskegon.*
Richard William Runge,	E.	81	*Winona, Minn.*
Oliver Andrew Rye,	C.	21	*Ishpeming.*
Arthur Gilbert St. John,	C.	95	*Ann Arbor.*
Herbert Lincoln St. John,	C.	37	*Ann Arbor.*
Samuel Shenkel,		34	*Springville, N. Y.*
Sylvester Ambrose Seabolt,	M.	36	*Ann Arbor.*
Louis Ernest Seas,	C.	63	*Vicksburg.*
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Julius J. Sorenson,			*Kasson, Minn.*
William Henry Spire,	E.	32	*Ceylon.*
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Harry J. Sproat,	M.	35	*Grand Rapids.*
Robert Edwards Stead,		6	*Tecumseh.*
Ernst Steck,		36	*Chicago, Ill.*
Ernest Charles Stroebe,		6	*Ferrysburg.*
Floyd Daniel Sutherland,			*Oxford.*
William Cornelius Swartout,	C.	24	*Fenton.*
William Whitney Talman,	M.	54	*Detroit.*
William Franklin Temple,		6	*Muskegon.*
Cary Davis Terrell,	E.	103	*Jackson, [illegible]*
Harry Elliott Thompson,		32	*Cedar [illegible]*
John William Titcomb,			[illegible]
Foster David Tower,	E.		[illegible]
Alva Frederick Traver,	M.		[illegible]
Frank Trott,	M.		[illegible]

Louis Napoleon Udell,		8	*Muskegon.*
Herbert Allen Vandeman,			*Denver, Col.*
Warren Merle Vandersluis,		8	*Big Rapids.*
Richard Waldron, Jr.,	C.	35	*Jackson.*
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Clarence Wright Whitney,	M.	110	*Traverse City.*
George Foster Whittemore,			*Jackson.*
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Burt Henry Winchester,	E.	33	*Jackson.*
Arthur Bryant Wood,	E.	90	*Union City.*
Floyd Jerome Wood,		8	*Niles.*
Joseph Walter Wood,	E.	59	*Niles.*
George Adelbert Worden,			*Grand Rapids.*
George Daniel Wuerfel,	M.	90	*Toledo, O.*
Bert Starr York,	E.	22	*Ann Arbor.*
Claude Earl Young,	C.	34	*Corunna.*
Jacob George Young,	C.	74	*Atkins, Ia.*
Theodore Frederick Zealand,	M.	35	*Jackson.*

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D. MURRAY COWIE, M.D.
CASPER K. LAHUIS, M.D.
AUGUST E. GUENTHER, B.S.

CHARLES L. BLISS, B.S.
GEORGE B. WALLACE. M.D.
JOHN S. JOHNSON, M.D.
JAMES R. ARNEILL, A.B., M.D.
WILLIAM A. SPITZLEY, A.B., M.D.
THEOPHIL KLINGMAN, PH.C., M.D.
THOMAS B. COOLEY, A.B., M.D.
NORTON D. COONS, M.D.
HAROLD M. DOOLITTLE.
LAWRENCE N. UPJOHN.
LOUISE M. DITHRIDGE.
JAMES F. BREAKEY, M.D.
LYDIA M. DEWITT, M.D.
FREDERICK A. BALDWIN, M.D.
WALTER A. NIVLING, PH.C.
CORYDON F. HEARD, M.D.
CHARLES W. JOHNSON, PH.C.

Non-Resident Lecturers.

WILLIAM M. EDWARDS, M.D., *Mental Diseases.*
EDMUND A. CHRISTIAN, A.B., M.D., *Mental Diseases.*
JAMES D. MUNSON, M.D., *Mental Diseases.*
SAMUEL BELL, M.D., *Mental Diseases.*
HENRY B. BAKER, A.M., M.D., *Administration of Health Laws.*

STUDENTS.

RESIDENT GRADUATES.

NAME.	RESIDENCE.
George Balmer, M.D., *Toronto University,*	*Inglewood, Ont.*
Harriet V. Bills Brooks, M.D.,	*Saginaw.*

FOURTH YEAR STUDENTS.

NAME.	RESIDENCE.
Florence Elizabeth Allen,	*Rochester, N. Y.*
Miranda May Allen,	*Rochester, N. Y.*
Alfred Wickham Balsley,	*Findlay, O.*
Frances E. Barrett, B.S., *Kalamazoo College,*	*Kalamazoo.*
Lester Hayes Beals, A.B.,	*Grand Blanc.*
Lena Adell Benjamin,	*Bradford, Pa.*
Philip Daggett Bourland, B.S.,	*Peoria, Ill.*
Robert Collyer Bourland, A.B.,	*Peoria, Ill.*

Samuel Robert Boyce, Ph.C.,	*Brooklyn.*
Isabel Agnes Bradley,	*Akron, O.*
Frederick William Brown, B.S., *Bucknell Univ.*,	*Franklin, Pa.*
Robert Clayton Buck,	*Saint Johns.*
John Everett Burnette,	*Putnam, Conn.*
James Francis Canavan,	*Holyoke, Mass.*
Roy Bishop Canfield, A.B.,	*Ann Arbor.*
Daniel George Castell,	*Pontiac.*
Oscar Elias Chase,	*Traverse City.*
Edwin M. Chauncey,	*Girard.*
Clarence George Clark,	*Ann Arbor.*
Willis Gurdon Cook, B.S.,	*Grand Blanc.*
John DeLamater Covert,	*Brooklyn.*
Galen Greenfield Crozier, B.S.,	*Ann Arbor.*
William Ralph Cunningham,	*Grove City, Pa.*
Arthur James Dresser, B.S., *Dartmouth College*,	*Hinsdale, Mass.*
Amos Driver,	*Carrollton, Ill.*
William Sylvio Durand,	*Ann Arbor.*
Halle Laura Ewing,	*Louisville, Ky.*
Albert Douglas Foster,	*Detroit.*
Raynor Spalding Freund,	*Butte, Mon.*
Stuart Eugene Galbraith, B.L.	*Pontiac.*
Conrad Georg, A.B.,	*Ann Arbor.*
Milton Lowrie Glenn,	*Emlenton, Pa.*
James Gostanian,	*Campello, Mass.*
George Frank Greenleaf, Jr.,	*Chicago, Ill.*
Walter Elmo Griffin,	*Saginaw.*
William Page Harlow,	*Decatur.*
Downey Lamar Harris,	*Franklin, Ky.*
Irma Irene Heller,	*Fremont, Ind.*
Levi St. John Hely,	*Borden, Cal.*
Glenn Henley,	*Fairmount, Ind.*
Willard Hunter Hutchings, B.L.,	*Leslie.*
Herbert Elias Kelly,	*LaSalle.*
LeRoy Wendell King,	*Rome, N. Y.*
Cabot Lull, Jr.,	*Pontiac.*
Theodore Charles Lyster, Ph.B.,	*Detroit.*
Calvin Fenwick McDowell,	*Wesley, Pa.*
Mary Crouse McKibbin,	*McKeesport, Pa.*
Jackson Lee Martin,	*[illegible] Creek.*
Maude Ethelyn Burt Martin,	*[illegible] Creek.*
Elihu Arthur Martindale, Ph.B., *[illegible] College*,	[illegible]

William Hampton Matchett,	*Ann Arbor.*
Clarence Warren Mehlhop,	*Dubuque, Ia.*
John Josiah Mersen, A.M., *Hope College,*	*Holland.*
William Robert Morrison,	*Corunna, Ont.*
Martin Alvin Mortensen,	*Battle Creek.*
William Daniel Mueller,	*Muskegon.*
Hiram Winnett Orr,	*West Newton, Pa.*
Jesse Obed Parker,	*Saginaw, West Side.*
John Leon Parker, B.S.,	*Charles City, Ia.*
Emma Pearson,	*Van Wert, O.*
Harvey Newton Peck, B.S., *Mich. Agr. Coll.,*	*Jackson.*
John Ross Petty,	*Fenton.*
Charles Banning Porter,	*Joliet, Ill.*
William Gilbert Povey, B.L.,	*Lake Linden.*
Floyd Hamilton Randall, B.S.,	*West Bay City.*
William Bernard Richmond,	*Mount Pleasant.*
Elizabeth Pond Rindlaub,	*Platteville, Wis.*
Francis Albert Scott,	*Macomb.*
Joseph Pearle Seale,	*Fairmount, Ind.*
Joseph Sill, A.B.,	*Detroit.*
Bert Granville Snow, B.S., *Northern Indiana Normal University,*	*Manistique.*
Andrew Lester Swinton, B.S.,	*Calumet.*
Szymon Szudrawski,	*Warsaw, Russia.*
Wesley Ewing Taylor, B.S.,	*Wheelersburg, O*
Clarence Traphagen,	*Fenton.*
Edward Camillo Van DeWalker,	*Ann Arbor.*
Aart Van Westrienen,	*Grand Haven.*
Felicie von Autenried,	*New York, N. Y.*
Frank Stanley Wasielewski,	*Bay City.*
Alanson Weeks,	*Allegan.*
Reid A. White,	*Clark's Lake.*
Ross Chauncey Whitman, A.B.,	*Ann Arbor.*
Alden Humphrey Williams,	*Ann Arbor.*
Mary Moore Wolfe, A.B., *Bucknell University,*	*Lewisburg, Pa.*
Charles Martin Wood,	*Martin's Ferry, O.*
Frederick Thompson Wright, A.B.,	*Jackson.*
George Frank Young,	*Paw Paw.*

The following student, enrolled in the Department of Literature, Science, and the Arts, is also pursuing studies as fourth year student in the Department of Medicine and Surgery.

NAME.	RESIDENCE.
Harold Dunbar Corbusier,	*Ann Arbor.*

THIRD YEAR STUDENTS.

NAME.	RESIDENCE.
Arthur Robert Adams,	*Peotone, Ill.*
Helen Emelia Affeld,	*Chicago, Ill.*
Harriet Virginia Baker,	*Greenwich, Conn.*
Carl Hardin Ballard,	*Estherville, Ia.*
Thomas Charles Barnhart,	*Estherville, Ia.*
Edgar Bates, B.S.,	*Bear Lake.*
Emil Frederick Baur,	*Manistee.*
Henry H. Brevoort,	*Lodi, N. J.*
Jeannette Marshall Brigham,	*Howell.*
Ray Haddock Burrell, B.L.,	*Ann Arbor.*
William Paul Caffey,	*Decatur, Ga.*
Earl Henry Campbell,	*Kalamazoo.*
William Asbury Chapman,	*Niles.*
Sara Thomasina Chase,	*Otsego.*
Roy William Chivers,	*Jackson.*
Dwight Freeman Clark,	*Detroit.*
George Wentworth Clark,	*Maumee, O.*
Helen Frances Taft Cleaves,	*West Gouldsboro, Me.*
Henry Walker Clouchek,	*Michigan City, Ind.*
Caroline Colver,	*Ann Arbor.*
Herbert Roy Conklin,	*Tecumseh.*
Clifton Able Cooper,	*Racine, Wis.*
Wilber Henry Cooper,	*Knoxville, O.*
William Albertus Coventry,	*Brainerd, Minn.*
Andrew Linn Coyle,	*New York, N. Y.*
Ernest Crockett,	*Dorset, O.*
Harriet Phebe Cutter,	*Utica, N. Y.*
Walter den Bleyker,	*Kalamazoo.*
Andrew Jackson Detweiler, A.B., *University of the State of Missouri,*	*Washington, Mo.*
Louise Mary Dithridge,	*New York, N. Y.*
James Arthur Durrent,	*Dickinson, N. Dak.*
Byron Corydon Eades,	*North East, Pa.*
Samuel Reed Eaton,	*Detroit.*
Thomas Flournoy,	*Clinton, Ia.*
Walter Eugene Foster,	[illegible]
Jed Burt Freund,	[illegible]
James Thomas Grace,	[illegible]
Burt Francis Green, A.B., *Hillsdale Colle*[illegible]	[illegible]
David S. Grim, A.B., *Bucknell Univer*[illegible]	[illegible]
George Tryon Harding, Jr.,	[illegible]

William David Harris,	*Kalamazoo.*
Louis Moffat Henderson,	*Saint Johns.*
James Henry, Jr.,	*Grand Rapids.*
Ben Simms Herring,	*Wilson, N. C.*
Wiley DeBarr Hickey,	*Leipsic, O.*
Martin Luther Hindley,	*Norwalk, O.*
Theodore Augustus Hoch,	*Michigan City, Ind.*
Bernhard Alfred Hoerman, A.B., *Northwestern University,*	*Watertown, Wis.*
Frank Holdsworth,	*Traverse City.*
Maria Kirby Hopkins,	*Castile, N. Y.*
Fritz Carleton Hyde, B.S.,	*Grand Rapids.*
Kate McClure Johnson, Ph.B., *University of Wooster,*	*Wooster, O.*
Ralph Kenney Johnson,	*Ludington.*
John Franklin Jordan,	*Haverhill, Mass.*
Christ William Kanne,	*Waterville, Minn.*
Minta Proctor Kemp,	*Sault Ste. Marie.*
Carl Sears Kennedy, B.S.,	*Rockford, Ill.*
Alice Lavinia Kimball,	*Newburyport, Mass.*
Aaron Floyd Kingsley,	*Leonidas.*
William Jordan Lakey,	*Chicago, Ill.*
John Alva Longmore, Ph.B., *Hiram College,*	*Warren, O.*
Carl Hayes Lund, A.B., *Marietta College,*	*Marietta, O.*
Harry McNeal, B.L.,	*Alvordton, O.*
Ada Luella Malick,	*Neptune, O.*
Jay Elmer Mallette,	*Grand Rapids.*
Philip Emanuel Marsh,	*Ann Arbor.*
Ernest Lafitt Martin,	*Saginaw.*
James Acker Mattison, A.B., *Univ. of Nashville,*	*McCormick, S. C.*
John Arthur Miller, A.B., *Williams College,*	*Portsmouth, Va.*
Charles Madison Mooney,	*Wheelersburg, O.*
John Harris Forster Mullett, B.S., *Mich. Agr. Coll.,* M.D.C., *Chicago Veterinary College,*	*Cassopolis.*
Charles Henneberry Mulroney,	*Fort Dodge, Ia.*
John Frank Murphy,	*Dowagiac.*
Frank Wesley Nagler, B.S.,	*Ann Arbor.*
Andrew Nelson,	*Ann Arbor.*
William Wilmon Newcomb, B.S.,	*Detroit.*
Anna Odell, A.B., *Vassar College,*	*Detroit.*
Herbert Edmund Peckham, A.B.,	*Ann Arbor*
George Raymond Pray,	*Ionia.*
Julia Kimball Qua,	*Kalamazoo.*

Albert Rowland, Ph.C., *Ada University,*	*Baker's Crossing, O.*
Leal Kenny Slote,	*Constantine.*
Shirley Holmes Smith, Ph.B., *Hillsdale College,*	*Hillsdale.*
Alice Gray Snyder,	*Ann Arbor.*
Samuel Bliss Stegeman,	*Allegan.*
John Stoddard,	*Omaha, Neb.*
Herbert Warren Stoughton,	*Chateaugay, N. Y.*
Pringle George Tait,	*Toledo, O.*
Erwin Hartwell Taylor,	*Winchendon, Mass.*
Carl Lawrence Thorsgaard, A.B., *Luther College,*	*Viroqua, Wis.*
Charles Ernest Tompkins, B.S.,	*Grand Rapids.*
Lawrence Northcote Upjohn,	*Kalamazoo.*
Bert Ketchum Van Naten,	*Cooperstown, Pa.*
Paul Van Riper,	*Niles.*
John Walter Verdier, Ph.B.,	*Grand Rapids.*
Harry Scott Vernon,	*Chicago, Ill.*
Walfred Archimedes von Zellen,	*Skanee.*
Herbert Harold Waite, A.B., *Amherst College,*	*Ann Arbor.*
Edwin Foster Wakefield, Ph.B., *Hiram College,*	*Hiram, O.*
Charles Franklin Watkins, Ph.C.,	*Reed City.*
Edward George Weadock,	*Lima, O.*
Ernest Llewellyn Wrentmore,	*Solon, O.*

The following students, enrolled in the Department of Literature, Science, and the Arts, are also pursuing studies as third year students in the Department of Medicine and Surgery:

NAME.	RESIDENCE.
Demeter Kalinoff,	*Ann Arbor.*
Eva May Locke,	*Nashua, N. H.*
James Leo Lynch,	*Wiscoy, Minn.*
Reynolds Cornelius Mahaney,	*Ann Arbor.*

SECOND YEAR STUDENTS.

NAME.	RESIDENCE.
Frank Paul Anzinger, A.B., *Wittenberg College,*	*Springfield, O.*
Patience Bourdeau Archer,	*Battle Creek.*
Rush Banks, B.L.,	*Novi.*
Hagopjan Garabed Barsoonian, A.B., *Central Turkey College,*	*Aintab, Turkey.*
Alfred Castle Bartholomew,	*Michigan City, Ind.*
Thomas Leland Baxter, B.L., *Hiram College,*	*Fayette, O.*
Lilian Marion Bigham, A.B.,	*Ann Arbor.*
Noah L. Book,	*Talmage, Kan.*
George Bowman,	*Irwin, Pa.*

John Charles Bradfield,	*Grand Rapids.*
Harry Renick Brown,	*Chillicothe, O.*
Cassie LaVerna Carvin,	*Rockford.*
William Sabin Chase, A.B., *Princeton Univ.*,	*Akron, O.*
Guy Clifton Conkle,	*Bucyrus, O.*
James Harry Cox,	*Calumet.*
James George Cumming,	*Oil City, Pa.*
Elvia Clair Derickson,	*Battle Creek.*
Frank C. Diver,	*Kalamazoo.*
William Arthur Dole, Ph.B., *Emporia College*,	*Melvern, Kan.*
Charles Wallis Edmunds,	*Richmond, Ind.*
Gertrude Felker, A.B., *Rockford College*,	*Madison, Wis.*
John Boggs Felker,	*Madison, Wis.*
Lela Nell Swarthout French,	*Benton Harbor.*
Nathaniel Hall Fuller,	*Hastings.*
Roy Henry Garm,	*Beardstown, Ill.*
George Bailey Goheen,	*Rockspring, Pa.*
Clarence Samuel Gorsline,	*Ann Arbor.*
Charles Webster Gould, Jr., A.B., *Berea College*,	*Berea, Ky.*
John Albert Gray,	*Ludington.*
Charles Courtney Grieve,	*Ionia.*
Christian Frederick Grimmer,	*Ann Arbor.*
Robert Edward Hathaway,	*Ann Arbor.*
James Hampton Hays,	*Ogden Centre.*
John Newell Holcomb,	*Grand Rapids.*
Augustus Holm,	*Decatur.*
Frank Hornbrook,	*Evansville, Ind.* [*R.I.*
Herbert Bradford Horton, A.B., *Brown Univ.*,	*East Providence Centre,*
Mayburn Howard,	*Edmond, Okla. T.*
Gardner Charles Johnson,	*Danville, Wis.*
Hans Martin Johnson,	*Ann Arbor.*
Frank Arthur Jones,	*Spring Arbor.*
Alvin Keller, B.S., *Buchtel College*,	*Grand Rapids.*
James Henry Kelsey,	*Cassopolis.*
Kenneth Edward Kilborn,	*Petoskey.*
William Thomas King,	*Calumet.*
Willis Joseph Kirkbride,	*Ann Arbor.*
George Milton Kline,	*Grand Rapids.*
Ralph Frederick Koons, Ph.B., *Bucknell Univ.*,	*Huntington Mills, Pa.*
Harry Bohumil Kyselka,	*Traverse City.*
George Samuel Laird,	*Rockport, Ind.*
George Henry Lamley,	*Blissfield.*
Frederick Jenison Larned,	*Lansing.*

Simon Levin,	*Michigamme.*
Ira Dean Loree,	*Tecumseh.*
Marshall Bidwell McCausland,	*New Haven.*
Joshua George Ross Manwaring,	*Ann Arbor.*
Jeremiah Herman Metzger,	*Oak Harbor, O.*
Emma Josephine Mitchell,	*LaFayette, Ind.*
William Horace Morley, Ph.B.,	*Detroit.*
Remus Cook Morris,	*Ann Arbor.*
Albert Noordewier, B.S.,	*Jenison.*
Herbert Smith Olney,	*Fresno, Cal.*
Walter Thomas Parker,	*Corunna.*
William Oscar Pou, A.B., *Fisk University,*	*Nashville, Tenn.*
Raymond George Richards,	*Grand Rapids.*
John W. Rigterink, B.S.. *Michigan Agricultural College,*	*Overisel.*
Earl Adam Rogers,	*Ann Arbor.*
Russell Sturgis Rowland, B.S.,	*Grand Rapids.*
Edward Daniel Sage,	*Gobleville.*
James Shanks,	*Clarksville.*
Francis Frederic Shilling,	*Tiro, O.*
Jacob Harrison Shuford,	*Hickory, N. C.*
Arthur Augustus Spoor,	*Big Rapids.*
Allen Chubb Steckle,	*Freeport.*
Oliver Silas Steiner, Ph.B., *Untv. of Wooster,*	*Bluffton, O.*
Frank Hartwell Thomas,	*Valdosta, Ga.*
John William Trask,	*Bay City.*
Fred Milton Tryon,	*Blystone, Pa.*
Luther Wall,	*Mount Ayr, Ia.*
Clarence Banjay Wasson, A.B., *Uuiversity of Rochester,*	*Cuba, N. Y.*
Roy Francis Wiest,	*Detroit.*
Allan Marshall Wilkinson,	*Atwood.*
Arlo Ray Williams, B.S.,	*Brookfield.*
Edward Augustus Willis,	*Wakefield, R. I.*
Arthur Roy Wren, B.S.,	*Muskegon.*
Thomas Zelinsky,	*Battle Creek.*

The following students, enrolled in the Department of Literature, Science, and the Arts, are also pursuing studies as second year students in the Department of Medicine and Surgery:

NAME.	RESIDENCE.
Earle Mason Brown,	*Battle Creek.*
George Edwards Fay,	*Chicago, Ill.*

Thomas Alvin Neal,	*Ann Arbor.*
Paul Oliver,	*Chicago, Ill.*
Grace Darling Peele,	*Jersey City, N. J.*
Willard John Stone,	*Gloversville, N. Y.*
LaRue Van Hook,	*Chicago, Ill.*
Frederick Rice Waldron,	*Jackson.*

FIRST YEAR STUDENTS.

NAME.	RESIDENCE.
Paul Randall Abell,	*Norwich, N. Y.*
Carl Eugene Acker,	*Macedon, N. Y.*
Dewitt Allen,	*Manlius, N. Y.*
Norman Irving Baker,	*Ann Arbor.*
Nathan Barlow,	*Coldwater.*
Ota Edwin Barnes,	*Napoleon, O.*
John Henry Beckert,	*Saint Louis, Mo.*
Frederic Peter Benjamin Bender,	*Wilderville.*
Aileen Marjory Betteys,	*Oxford.*
Ernest Brennan Bradley, A.B., *Kentucky Univ.*,	*Lexington, Ky.*
Jacob Breid, A.B., *Avalon College*,	*Trenton, Mo.*
Maria Wolz Breid,	*Trenton, Mo.*
Andrew Carl Berg Bremer,	*Greenville.*
Oscar Henry Bruegel,	*Ann Arbor.*
Charles Wesley Burgwin,	*Turkey City, Pa.*
Ulysses Schuyler Colfax Busch, B.S., *Northern Indiana Normal School*,	*Racine, O.*
William Garretson Carhart,	*Marion, Ia.*
John Robert Carney,	*Logansport, Ind.*
Charles Ernest Clark, A.B., *Dartmouth College*,	*West Brattleboro, Vt.*
Grace M. Clark,	*Mayville.*
Prentiss Bowden Cleaves,	*Ann Arbor.*
James Monroe Cooper,	*Grass Lake.*
†Edgar Charles Cox,	*Farmington.*
Mortimer Edwin Danforth,	*Grand Rapids.*
Edmiston Darragh, Jr.,	*Joliet, Ill.*
Alfred Russell Dart,	*Mason.*
Stella Pearle DeWitt,	*Dexter.*
Thomas Joseph Dowling,	*Chatham, Ont.*
William J. Durant,	*Washta, Ia.*
Alice Barker Ellsworth,	*Mason.*
†Warren Philo Elmer,	*Lodi, O.*
Carl Meridith Erb,	*Bear Lake.*
William Albert Evans,	*Ann Arbor.*

George Wesley Evarts,	*Big Rapids.*
William Oscar Fishley,	*Clare.*
Richard Roy France,	*Decatur, Ind.*
Burdette Scrage Frary,	*Ypsilanti.*
Clark Butern Fulkerson,	*Three Rivers.*
Harry Webster Garberson,	*Calumet.*
Seymour Fellows Gates,	*Orange.*
Albert Julius Geiger,	*Woodland.*
Frank James Gibson,	*Jackson.*
John Henry Gilpin,	*Cheboygan.*
John McConnell Graham,	*Volant, Pa.*
Arthur Emery Green,	*Ann Arbor.*
Augustus Ernest Guenther, B.S.,	*Sandusky, O.*
David Jones Hale, B.S., *Mich. Agr. Coll.*,	*Benton Harbor.*
Raymond Stephen Halligan,	*Albion, Neb.*
Isabelle Harter,	*Brooklyn, N. Y.*
John Goold Harvey,	*Detroit.*
Sidney Zell Herbert,	*Evansville, Ind.*
John Bennett Herff,	*Saint Louis, Mo.*
Harry Harvey Hewitt,	*Ellendale, N. Dak.*
Albert Edward Hillis,	*Bathgate, N. Dak.*
Walter Sanford Holmquist,	*Salina, Kan.*
Robert Edward Homans,	*Lexington, Mass.*
Anthony Wilber Hoon,	*Mercer, Pa.*
Glenn Atherton Howard,	*Columbus, Wis.*
Edward Vernard Howlett,	*Gregory.*
Jane Hughes,	*Blue Earth City, Minn*
DeWitt Clinton Huntoon, B.L.,	*Waterfora.*
†Harry Lyman Imus,	*Ann Arbor.*
Sarkis P. Jamgatchian,	*Alexandria, Egypt.*
Harry Arthur Johnson,	*Ishpeming.*
Thomas Victor Keene,	*Evansville, Ind.*
Neal Kellogg,	*Strickland.*
Roderick Duncan Kennedy,	*Cheboygan.*
Nelson Eugene Kepler,	*Barberton, O.*
Frank Alsworth King,	*Benton Harbor.*
Oscar Kirchgessner,	*Manchester.*
Henry Cyril Knapp,	*Evansville, Ind*
Otto Henry Kohlhaas,	*Calumet.*
George William Lawton,	*New York, N. Y.*
Harold James Levis,	*Rochester, N. Y.*
George Gunn Lindsay,	*Scranton, Pa.*
Francis William Lockwood,	*Port Jervis, N. Y.*

William Otis McBride,	*Joliet, Ill.*
Hugh McCarroll, B.S., *Lenox College,*	*Royal Oak.*
Clayton William McClenahan,	*Greenfield, Pa.*
Harry Stowe McGee,	*Jackson.*
William E. McNamara,	*Howell.*
Russel Ross Marble, B.S., *Mich. Agr. Coll.,*	*Webberville.*
Thomas Philip Martin,	*Olivet.*
Oatis Guy Messenger,	*Morgantown, W. Va.*
Albert Millen,	*Syracuse, N. Y.*
Ralph Luther Morse,	*Ann Arbor.*
Hampshire Mack Morris,	*Ann Arbor.*
Harry Kavanaugh Morrison,	*Copenhill, Ga.*
Frederick Henry Newberry,	*Petoskey.*
Otis E. Newsome,	*Williamsville.*
Charles Frederick Nieder,	*Phelps, N. Y.*
Norman Beard Noll,	*Mercer, Pa.*
Lydia Marian O'Harrow,	*Union Springs, N. Y.*
Tatsuzo Ohno,	*Suruga, Japan.*
Donald Platt Osborne,	*Barnesville, O.*
LaFayette Russell Parsons,	*Oshkosh, Wis.*
Thomas Woodburn Paton,	*Almont.*
Charles Lanphier Patton,	*Springfield, Ill.*
John Groh Philips,	*Lickdale, Pa.*
Eugene Bennett Pierce, A.B., *Williams College,*	*Putney, Vt.*
Charles John Piquette, B.S., *Notre Dame University,*	*Detroit.*
Velura Edna Powell,	*Glenwood, Ia.*
Richard Van Deren Pride,	*Saint Joseph.*
William Kendall Pullis,	*Ashtabula, O.*
Kate Jane Rayl,	*McGuffey, O.*
Alta Edna Rice,	*Niles.*
Herbert Matteson Rich, B.L.,	*Ann Arbor.*
Nelson John Robbins,	*Ishpeming.*
Clifford Clarence Robinson,	*Dowagiac.*
Fred George Ronneburger,	*Milwaukee, Wis.*
†Ashley Davenport Rowe,	*Lansing.*
Hubert Davison Russell,	*Battle Creek.*
Frederick William Sauer, Ph.G., *Northern Indiana School of Pharmacy,*	*Calumet.*
Harry Arthur Schirrmann,	*Portsmouth, O.*
Edward Washington Scowden,	*Frewsburg, N. Y.*
Fred Stern Sleight,	*Ann Arbor.*
Francis Lavelle Smith,	*Cayutaville, N. Y.*

William Oscar Smouse,	*Des Moines, Ia.*
Frank Robert Spencer,	*Monticello, Ind.*
Anton B. Spurney,	*Cleveland, O.*
Edwin McDonald Stanton, B.S., *Iowa State College,*	*Ames, Ia.*
Hannah Ophelia Staufft, A.M., *Bucknell Univ.,*	*Pittsburgh, Pa.*
Charles Edward Street, A.B., *Williams College,*	*Lee, Mass.*
Lynn J. Tuttle,	*Ypsilanti.*
Charles Adam Ulmer,	*Bucyrus, O.*
Frank Underwood,	*Chicago, Ill.*
Lewis B. VanDeboget,	*Stanton.*
Charles Curtis Wallin, A.B.,	*Grand Rapids.*
Edward Everett Webber,	*Reese.*
Albert Andrew Weber, B.S.,	*Jackson.*
Ione Marie White,	*Shepherd.*
William Daniel Whitten,	*Utica, N. Y.*
Archie Wickham,	*Chesaning.*
Orlando Curtis Wicks,	*Moline, Ill.*
Emily Widdecombe,	*Kent, O.*
Edwin Richard Williams,	*Ann Arbor.*
Ira Victor Yale,	*Deerfield.*
Charles Webb Yarrington,	*Ann Arbor.*

The following students, enrolled in the Department of Literature, Science, and the Arts, are also pursuing studies as first year students in the Department of Medicine and Surgery:

NAME.	RESIDENCE.
Jenny English Crozier,	*Ann Arbor.*
Levi Orville Davis,	*Ann Arbor.*
Leonard Counsellor Honesty,	*Memphis, Tenn.*
Cecil McKee Jack,	*Decatur, Ill.*
Clyde Watkins Jump,	*Plainfield, Ill.*
Frank Cameron Kinsey,	*Grand Rapids.*
Robert Owen LeBaron,	*Pontiac.*
Samuel Ottmar Mast,	*Webster.*
Roger Sylvester Morris,	*Ann Arbor.*
Adoniram Judson Pettis,	*Flint.*
Clarence Bingham Ripley,	*Hinsdale, Ill.*
Kirk Shawgo,	*Quincy, Ill.*
John Backus Taylor,	*Wheelersburg, O.*
Victor Clarence Vaughan, Jr.,	*Ann Arbor.*

The following student, enrolled in the College of Dental Surgery is also pursuing studies as first year student in the Department of Medicine and Surgery:

NAME.	RESIDENCE.
James Roy Davis, D.D.S.,	*Ann Arbor.*

SPECIAL STUDENTS.

NAME.	RESIDENCE.
William Rufus Dodson, B.S., *University of the State of Missouri*, B.S., *Harvard University*,	*Baton Rouge, La.*
Frank Heady Lamb, B.S.,	*Ann Arbor.*

The name of Ovidus Arthur Griffin, B.S., *Fayette Normal University, Fayette, O.*, should be included in the list of Fourth Year Students on page 307.

Department of Law.

FACULTY.

JAMES B. ANGELL, LL.D., *President.*
BRADLEY M. THOMPSON, M.S., LL.B.
JEROME C. KNOWLTON, A.B., LL.B.
FLOYD R. MECHEM, A.M.
THOMAS C. TRUEBLOOD, A.M.
OTTO KIRCHNER, A.M.
HARRY B. HUTCHINS, LL.D., *Dean.*
THOMAS A. BOGLE, LL.B.
VICTOR H. LANE, C.E., LL.B.
JAMES H. BREWSTER, Ph.B., LL.B.
HORACE L. WILGUS, M.S.
ELIAS F. JOHNSON, B.S., LL.M., *Secretary.*
AARON V. McALVAY, A.B., LL.B.
JOHN W. DWYER, LL.M.
ALBERT J. FARRAH, LL.B.
JOHN R. ROOD, LL.B.

JOHN B. CLAYBERG, LL.B.,
Non-Resident Lecturer on Mining Law.
VICTOR C. VAUGHAN, Ph.D., Sc.D., M.D.,
Lecturer on Toxicology in its Legal Relations.
MELVILLE M. BIGELOW, Ph.D.,
Non-Resident Lecturer on Insurance.
HENRY C. ADAMS, LL.D.,
Lecturer on the Railroad Problem.
ANDREW C. McLAUGHLIN, A.M., LL.B.,
Lecturer on Constitutional Law and Constitutional History
RICHARD HUDSON, A.M.,
Lectu[illegible] [illegible] [illegible]rative Constitutional Law.
HENRY [illegible] [illegible]M.,
N[illegible] [illegible] on Admiralty Law.

FRANK F. REED, A.B.,
Non-Resident Lecturer on Copyright Law.
ALBERT H. WALKER, LL.B.,
Non-Resident Lecturer on Patent Law.
WILLIAM J. HERDMAN, M.D., LL.D.,
Lecturer on Neurology, Electrology, and Railway Injuries.
JOSEPH H. DRAKE, A.B.,
Lecturer on Roman Law.

STUDENTS.

RESIDENT GRADUATES.

NAME.	RESIDENCE.
Colin Percy Campbell, LL.B.,	*Ann Arbor.*
George Budd Gould, LL.B.,	*Aspen, Col.*
George Kingsley, Jr., LL.B.,	*Paola, Kan.*

THIRD YEAR STUDENTS.

NAME.	RESIDENCE.
Basil Burgess Adams,	*Spokane, Wash.*
Bertrand Francis Aldrich,	*East Douglas, Mass.*
Peyton Edmond Alexander,	*Prattville, Ala.*
George Hiram Allen,	*Seattle, Wash.*
John Curtis Ammerman,	*Moline, Ill.*
Clifford Burnham Anderson,	*Portsmouth, O.*
Ray Nelson Anderson,	*Summer Hill, Ill.*
John Arbenz, Jr., A.B., *West Virginia University,*	*Wheeler, W. Va.*
Larson Harvey Arends,	*Syracuse, Neb.*
Louis Selk Arnold,	*Milwaukee, Wis.*
Edwin Maurice Ashcraft, Jr.,	*Chicago, Ill.*
Benjamin Miller Austin,	*Kalomazoo.*
Oscar Otto Bader,	*New Albany, Ind.*
Verne Wade Badgley,	*Jackson.*
Frederick Charles Ballard, A.B.,	*North Branch.*
Grant Wilson Baker, LL.B., *Indiana University,*	*Brookville, Ind.*
James Alfred Bardin,	*Salinas, Cal.*
Albert Raymond Barnes,	*Kalamazoo.*
Richard Marshall Barnhart,	*Ann Arbor.*
Joseph Milton Barr,	*Joliet, Ill.*
Charles Sumner Beardsley,	*Kalamazoo.*
Chester Leigh Benedict,	*Port Huron.*
Warren Berkey,	*Goshen, Ind.*

George Estal Bielby,	*Sunman, Ind.*
William James Bigger, Jr.,	*Navarro, Cal.*
Frederic Henry Bowers,	*Edon, O.*
Harold Martin Bowman,	*Des Moines, Ia.*
George Corrington Brainerd,	*Grafton, Ill.*
Robert Hanson Brothers,	*Alexandria, Ky.*
Frank William Brown,	*Wakarusa, Ind.*
Charles Mumford Bush,	*Kansas City, Mo.*
William Henry Caley,	*Boulder, Col.*
Daniel Dwyer Campbell,	*Cincinnati, O.*
José Tomas Canales,	*Alice, Tex.*
Joseph Knight Carey,	*Darlington, Wis.*
John Andrew Cashel,	*Arcadia, Wis.*
Edward D. Caskey,	*Petoskey.*
Edward Henry Cassey,	*Detroit.*
Arthur Francis Chapman,	*Niles.*
Harry Landon Chapman,	*Jerseyville, Ill.*
William Carlton Chase,	*Drain, Ore.*
Charles James Napoleon Chernoch,	*Menominee.*
Albert H. Christenson,	*Gunnison, Utah.*
Percy Clarke Church,	*Fresno, Cal.*
Henry Cottman Churchman,	*Indianapolis, Ind.*
Hazlett Norton Clark,	*Des Moines, Ia.*
Henry Tefft Clark, Jr., Ph.B., *University of Chicago,*	*Omaha, Neb.*
Harold Augustus Clarke,	*San Francisco, Cal.*
Frederick William Backus Coleman, A.B.,	*Detroit.*
Harry Collison,	*Collison, Ill.*
Harley June Cortright,	*Springport.*
Louis Convers Crampton,	*Lapeer.*
Clifford Waldorf Crandall, B.S., *Adrian College,*	*Fargo.*
Herman Wenger Danforth,	*Washington, Ill.*
Daniel Edward Dannenberg,	*Tahlequah, Ind. T.*
Clarence Newton Davidson,	*Anaconda, Mon.*
Charles Pugh Davis, B.L.,	*Lewis, Ia.*
Mervin Day, B.S., *Ohio Normal University,*	*Kossuth, O.*
Thomas Roland Dean, A.B., *State College of Kentucky,*	*Little Hickman, Ky.*
David Francis Dillon, A.B., *Tufts College,*	*Palmer, Mass.*
Thomas Dooling,	*Hancock.*
Myron Elmer Douglass,	*Fenton.*
Harry Brandt Draa,	*Adrian.*
George Julius Dreiske,	*Chicago, Ill.*

Frank Gifford Drenning, B.S., *Washburn College,*	*Topeka, Kan.*
Jacob D. Dubock, LL.B., *University of Oregon,*	*Vancouver, Wash.*
Robert Mack Dye,	*Woodsfield, O.*
Thomas Boyd Dysart,	*Superior, Neb.*
Thomas Edwards, Jr.,	*Ann Arbor.*
John Edward Egan,	*Excello, O.*
William David Ellsworth,	*Detroit.*
Travis Elmore,	*Ashland, Ill.*
Harold Hunter Emmons, A B.,	*Detroit.*
Joseph John Ethier,	*South Lake Linden.*
Thomas Leon Everett,	*Waterville, Minn.*
Edward Hamilton Fairburn,	*Des Moines, Ia.*
Frank Archibald Fairburn,	*Des Moines, Ia.*
Edward Richard Feckenscher,	*Fenton.*
Harry Anthony Fenton, A.B., *Miami University,*	*Oxford, O.*
Oren Henderson Fisher, LL.B., *University of Indianapolis,*	*New Britton, Ind.*
Arthur Lyle Fitch,	*Howell.*
Leo Troy Flansburg,	*Kalamazoo.*
George Preston Fogle, B.S., *Georgetown College,*	*Middleburg, Ky.*
James Milton Fuller,	*Tuscola, Ill.*
Arthur William Ganschow,	*Saginaw, West Side.*
Winfred Sutton Gilbert,	*Spokane, Wash.*
William John Gillett,	*Herrington.*
Harry Leith Goodbread,	*Nevada, O.*
Edwin Charles Goddard, Ph.B.,	*Ann Arbor.*
Charles Coy Green,	*Battle Creek.*
Leech Agnew Grove, A.B., *Lake Forest Univ.,*	*Ellwood City, Pa.*
Wilson Benjamin Haight,	*Addison.*
Benjamin Howard Halstead, A.B., *Indiana University,*	*Petoskey.*
Joseph Gordon Hamblen, Jr.,	*Detroit.*
Robert Lewis Hampton,	*Glenwood.*
John Eugene Harding,	*Excello, O.*
Samuel Alain Harper,	*Chicago, Ill.*
George DeWitt Harris,	*Franklin, Ky.*
Frederic Harry,	*Hancock.*
John Michael Haverty,	*Pittsburgh, Pa.*
Albert C. Healy,	*Argentine.*
Frederick Willard Heatherly,	*El Paso, Tex.*
Ernest John Heinze,	*Elsie.*
James Madison Hervey,	*Evart.*
Horace H. Hess,	*Pine Grove, Pa.*

James Ralph Hogg,	*Knoxville, Ill.*
Lemuel Homer Hole,	*New York, N. Y.*
Cornelius Nicholas Hollerich,	*Spring Valley, Ill.*
Charles Frederick Hornberger, Jr.,	*Cincinnati, O.*
Robert Edward Hyde,	*Goshen, Ind.*
Orville Kiger Jones,	*Connersville, Ind.*
William Kehoe,	*Rohnerville, Cal.*
Martin Van Kellogg,	*Athens.*
Paul Courtland King,	*Grand Rapids.*
Gerrit William Kooyers,	*Holland.*
Marsh Euen Lambert,	*Shawneetown, Ill.*
Cary Dayton Landis,	*North Manchester,*
William Joe Lanier, A.B., *Bethel College,*	*Forrest City, Ark.*
William James Larmour,	*Fort Wayne, Ind.*
Mortimer Ben Levy,	*Moberly, Mo.*
Moses Montefiore Levy,	*Quincy, Ill.*
John H. Lewis, Jr.,	*Knoxville, Ill.*
Albert D. Leyhe,	*Lancaster, Mo.*
Almon Henderson Linn,	*Alpha, Ill.*
William David Lloyd,	*Johnstown, Pa.*
Archer Frederick Lowe,	*London, N. H.*
Henry Cornelius Lund,	*Ephraim, Utah.*
Hilliard Graham Lyle,	*Battle Creek.*
William Lee McConnell, B.S., *Westminster Coll.,*	*Hickory, Pa.*
Edward McCormack,	*Lake Linden.*
William George McCune,	*Petoskey.*
Charles F. McDaniel,	*Fargo, N. Dak.*
Francis Thomas McDonald,	*Sault Ste. Marie.*
John Gaily McKelvy,	*Washington, Kan.*
Milton James McVean,	*Fenton.*
Allen Clare Malloy,	*Emporia, Kan.*
Carl Edgar Mapes, A.B., *Olivet College,*	*Olivet.*
Fred Byron Marshall,	*Chicago, Ill.*
Thomas Jackson Marshall,	*Port Clinton, O.*
John Aaron Matthews,	*Helena, Mon.*
Stanley M. Matthews, B.L.,	*Escanaba.*
Webb Perfet Matthews,	*Logansport, Ind.*
Harold Cassius Mendelson,	*Ludington.*
Fredd Rial Miller, A.B., *Hillsdale College,*	*Mattison.*
John Oliver Miller,	*Somerset, Pa.*
William Ray Moss,	*Ann Arbor.*
Edwin Jacob Mosser, A.M., *Muhlenberg College,*	*Stines Corner, Pa.*
Samuel Isaac Motter,	*St. Joseph, Mo.*

Frank Leslie Mulholland,	***Ann Arbor.***
Warren Mullett,	*Kansas City, Mo.*
Elton Robert Nellis,	*Wyandotte.*
Gustave Nelson,	*Chicago, Ill.*
Walter Harper North, A.B., *Hillsdale College,*	*North Adams.*
Hartwell Nowell,	*Chilliwack, British Columbia.*
William Richard Oates,	*Calumet.*
William John O'Brien,	*Grand Marais.*
Maurice Griffin O'Connor,	*Blockton, Ia.*
Frank Milon Orem,	*Salt Lake City, Utah.*
John Wallace Paul,	*Johnstown, Pa.*
James Shanks Perry,	*Willard, Utah.*
Elmer Norman Peters,	*Springport.*
Earl Francis Phelps,	*Sturgis.*
Fred Edgar Phillipson,	*Dowagiac.*
William Edward Rafferty,	*Chicago, Ill.*
Henry Eber Randall,	*Vassar.*
Fred Morton Raymond,	*Berlin.*
Joseph Lilly Reed,	*Louisville, Ky.*
Morris Houghton Reed, A.B., *Yale University,*	*Saint Joseph, Mo.*
John Wilkins Reynolds, A.M., *Willamette Univ.,*	*Salem, Ore.*
Davenport Brown Richardson,	*Oklahoma City, Okla. T.*
Turner Samuel Rickart,	*Barry, Ill.*
Harry Rickel,	*Detroit.*
Harry Warren Robinson,	*Denver, Col.*
Louis Leslie Robinson,	*Sunman, Ind.*
Robert Edward Robinson,	*White Lake, N. Y.*
Charles Ernest Roblin,	*Salem, Ore.*
George Henry Rosenthal,	*New York, N. Y.*
Burton Edward Ross,	*Spring Arbor.*
Herbert Walter Runnels,	*Sault Ste. Marie.*
George Frederick Ruppe,	*Calumet.*
Fred Russ,	*Galien.*
Sigmond Sanger,	*Toledo, O.*
Eugene Saunders,	*Reading.*
Andrew Jackson Sawyer, Jr.,	*Ann Arbor.*
Harry Garr Schock, A.B.,	*South Bend, Ind.*
Edward Schreiner,	*Allegheny, Pa.*
Philip Walter Seipp,	*Chicago, Ill.*
Lisle Shanahan,	*Edwardsburg.*
Chester Delbert Sharp,	*Centerville.*
Frank Gray Shaver,	*Pittsburgh, Pa.*
Frank Wiley Shepherd,	*Elgin, Ill.*

Frederic Royal Sherman,	*San Francisco, Cal.*
Earnest Augustus Skinner,	*Owosso.*
DeWitt Clinton Slocum,	*Terre Haute, Ind.*
Harold Rainey Small,	*Belleville, Ill.*
Ernest Clarence Smith, A.B., *Olivet College,*	*Kalkaska.*
George Harris Smith,	*Salt Lake City, Utah.*
Hervey Montgomery Smith, A.B.,	*Bloomsburg, Pa.*
Robert Abram Smith,	*Brooklyn.*
Wallis Craig Smith,	*Saginaw, West Side.*
Custer Snyder, A.B., *Scio College,*	*Scio, O.*
Ellis Gary Soule,	*Plainwell.*
Orson Pratt Soule,	*Hooper, Utah.*
George Marcellus Stephen,	*Ann Arbor.*
J. Branch Stocking,	*Lisbon Centre, N. Y.*
Morgan Strong, LL.B., *Cornell University,*	*Amsterdam, N. Y.*
Justin Lovell Sutherland,	*Grand Ledge.*
Frank Raymond Sweasey,	*Eureka, Cal.*
Frederick A. Sweet,	*Salt Lake City, Utah.*
Henry Smith Tanner,	*Payson, Utah.*
Joshua Charles Taylor,	*Chester, Pa.*
Fulton Thompson,	*Chrome, Pa.*
Walter Dudley Tipton,	*White Sulphur Springs, Mon.*
Frederic Lawrence Travers,	*Saginaw.*
Leo Clyde Tuck, B.S., *Napa College,*	*Batavia, Cal.*
Abraham Joseph Ullman,	*Cincinnati, O.*
Robert R. Wade,	*Chillicothe, Mo.*
Andrew Josiah Walrath,	*Bozeman, Mon.*
Roy Milton Watkins,	*Rockford.*
Charles Henry Watson,	*Crystal Falls.*
Harold Butler Wetmore,	*Detroit.*
Roland Dare Whitman, A.B.,	*Ann Arbor.*
George Culver Wilson,	*Brooklyn.*
LeRoy Allen Wilson, B.S., *Mich. Agr. Coll.,*	*Lawton.*
Mahlon Egbert Wilson,	*Plymouth, O.*
Carl Victor Wisner,	*Tecumseh.*
Herbert Dudley Witherell,	*Manchester.*
Lucerne Austin Wittenmyer,	*Fenton.*
William Frederick Wolf,	*Saginaw.*
Alphonso Calvin Wood, A.B., *Tri-State Normal College,*	*Angola, Ind.*
Eugene Charles Worden,	*Grand Rapid*
Isidor Ziegler,	*Huntington*
Forest Vishua Zimmer, B.S., *Centre College,*	*Hopkinsvi*

SECOND YEAR STUDENTS.

NAME.	RESIDENCE.
Edward John Abersol,	*Metamora, Ill.*
John Adams,	*Edmond, Okla. T.*
Raymond Brown Alberson,	*Washington, Ia.*
George Firth Anderson,	*Sand Creek.*
Guy Ashton Andrews, A.B., *Dartmouth College,*	*Providence, R. I.*
Frederick Richard Austin,	*Detroit.*
Lucius Babcock,	*Ionia.*
William Nelson Ballou,	*Huntertown, Ind.*
Joshua Francis Barbee, A.B., *Westminster College,*	*Excelsior Springs, Mo*
Rolland Emery Barr,	*Buchanan.*
Rupert John Barry,	*Chicago, Ill.*
Charles Edward Barthell,	*West Superior, Wis.*
Charles Frederic Beach,	*Bay City.*
Harold Clifton Beatty,	*Utica.*
Guy Clayton Beckwith,	*Benton Harbor.*
Frederick Warren Bigelow,	*Detroit.*
Herman Thomas Bowman,	*Des Moines, Ia.*
Albert Eugene Boynton,	*Oroville, Cal.*
Bert John Bradner, B.L.,	*Plymouth.*
John Eli Brondige,	*Pontiac.*
William Campbell Brooks,	*Saginaw.*
Elmer Allen Brown,	*San Francisco, Cal.*
Lawrence Herbert Brown,	*Sault Ste. Marie.*
Franklin Edgar Bryant,	*Rochester, Ind.*
Jesse Robert Stratford Budge,	*Paris, Idaho.*
Walter Victor Bulleit,	*Corydon, Ind.*
Herbert Bernard Buster,	*Charleston, W. Va.*
Frank Butler,	*Rochester, N. Y.*
Ralph Eugene Calahan,	*Ann Arbor.*
Florian Amede DeBourn Carnal,	*Waddington, N. Y.*
John Gordon Carter, Ph.B., *Illinois College,*	*Jacksonville, Ill.*
Joseph Duncan Chamberlain,	*Hightstown, N. J.*
Albert Morgan Cloud, B.S., *Lenox College,*	*Earlville, Ia.*
Philip Marion Cloud,	*Earlville, Ia.*
Frederick Charles Cogshall,	*Benton Harbor.*
Burnell Colson,	*Fremont, Neb.*
Harry Steele Commager,	*Toledo, O.*
Thomas Arthur Conlon,	*Eaton Rapids.*
Everett Connelly,	*Casey, Ill.*
Curtis Leigh Converse,	*Plain City, O.*
Henry Aaron Converse,	*Springfield, Ill.*

Byron Henry Coon, Ph.B.,	*Ann Arbor.*
Allan Priest Cox,	*Detroit.*
Frank Goodwin Crane, A.B., *Brown University,*	*Toledo, O.*
Newton William Crose,	*Shenandoah, Ia.*
Charles Fair Crothers,	*San José, Cal.*
Edward Jacob Daehler,	*Portsmouth, O.*
William Frederick Dains,	*Ann Arbor.*
John Boyce Dandridge, B.S., *Northern Indiana Normal School,*	*Dallas, Tex.*
Horace Warren Danforth, B.L.,	*Denver, Col.*
Ernest George Davids,	*Danby.*
William Burt Davies,	*Chicago, Ill.*
George Newton Davis, A.B.. *Missouri Valley College,*	*Marshall, Mo.*
William Louis Day,	*Canton, O.*
Joseph Gish Donaldson, A.B., *Bethel College,*	*Hopkinsville, Ky.*
Heber Lincoln Drake,	*Lebanon, O.*
William John Dusse,	*Mount Clemens.*
Charles Clarence Dutch,	*Beardstown, Ill.*
Martin Hancock Eakle,	*Forreston, Ill.*
Louis Herman Ehrlich,	*Saint Joseph, Mo.*
Roscoe Carl Elliott,	*Defiance, O.*
Alfred George Ellick,	*Omaha, Neb.*
Wallace Hugh Failing,	*Baldwinsville, N. Y.*
Frank Bradley Fancher,	*Berrien Springs.*
Walter Eliot Ferguson,	*Detroit.*
Joseph John Fiedler,	*Mineral Point, Wis.*
Fred Palmer Finerty,	*Oklahoma City, Okla. T.*
George Rinaldo Fish, B.S., *Northern Indiana Normal School,*	*Logansport, Ind.*
Lewis Fisher,	*Centerville.*
Carl Boughton Ford,	*Benton, O.*
William Louis Ford,	*White Sulphur Springs, Mon.*
William Ross Fox,	*Kalamazoo.*
Andrew Jackson Freeborn,	*Washington, Kan.*
Charles Andrew Funkhouser, A.B., *Otterbein University,*	*Dayton, O.*
Shigetsuna Furuya, *Doshisha College,*	*Shimo-uwa, Japan.*
William Clayton Geake,	*Fort Wayne, Ind.*
John L. Gilchrist,	*Schoolcraft.*
Robert Henry Gittins,	*Oswego, N. Y.*
George Wood Govert, A.B., *Illi*[illegible] *Yale University,*	*Quincy, Ill.*

James Almon Greene,	*Pinckney.*
Charles Arthur Haggart,	*Hudson.*
William Aloysius Halpin,	*Hadley.*
Lyle Blake Hamilton,	*Jackson.*
Otto Henry Hans,	*South Bend, Ind.*
Thomas Paul Hardy,	*Racine, Wis.*
Raymond Harris,	*Richmond, Ind.*
Fred William Hartsburg,	*North Aurora, Ill.*
John Francis Haskett,	*Bottineau, N. Dak.*
John Henry Hauberg, A.B., *Northern Indiana Normal School,*	*Hillsdale, Ill.*
Joseph Wilber Haynes,	*Peru, Ind.*
Henry Thomas Heald, Ph.B.,	*Grand Rapids.*
Ernest Joy Heck, B.S., *Mich. Agr. Coll.,*	*Burnips Corners.*
Harry Helfman, A.B.,	*Detroit.*
William Woodward Hicks,	*Tecumseh.*
Clayton Homer Hoffman,	*Allegan.*
Evans Holbrook, A.B., *Leland Stanford, Jr., University,*	*Onawa, Ia.*
Joseph William Howell,	*Macon.*
Ned Y. Howell,	*Salem, O.*
Thomas Stilwell Huntley,	*Huntley, Ill.*
Theodore K. Jackson,	*Chicago, Ill.*
Ralph Hartwell Jernegan,	*Mishawaka, Ind.*
Dana Thompson Jones,	*Lansing.*
Charles Frank Juttner,	*Menominee.*
William Peter Kavanagh,	*Denver, Col.*
William Lewis Kelley,	*Jackson.*
Edward Percival Kirby,	*Grand Haven.*
Walter George Kirkbride,	*Ann Arbor.*
William Louis Klein,	*Detroit.*
Rutherford Burges Hayes Kramer,	*Elgin, Ill.*
William Donald Kyle,	*Butte, Mon.*
Davis Frank Lawley,	*Springfield, Ill.*
William Oliver Lee,	*Bristol, Ind.*
John Camillus Lehr,	*Monroe.*
Wilbur Rutherford Lemley,	*Quincy, Ill.*
Harry Levison,	*Leipsic, O.*
Oscar Edward Linderholm,	*Chicago, Ill.*
Carl Lindenmann,	*Chicago, Ill.*
Peter Michael Lippert,	*Pittsburgh, Pa.*
Albert Victor Long,	*La Crosse, Ind.*
Fred W. Loomis,	*Battle Creek.*

Leo Bennett Lowenthal,	*Chicago, Ill.*
Thomas Eddy Lyon, B.S., *Kansas Agr. Coll.,*	*Manhattan, Kan.*
John Bradner McAdoo, Ph.B., *Grove City College,*	*West Lebanon, Pa.*
William McCready, B.S., *Lenox College,*	*Wyoming, Ia.*
Charles Gilman McDonald, B.S., *Oberlin College,*	*Fremont, Neb.*
Duncan McFarlane,	*Rock Island, Ill.*
Charles Francis McKenzie,	*Banfield.*
Bert Ellsworth McLaughlin,	*New Windsor, Ill.*
Aaron Mandelbaum,	*Wabash, Ind.*
Edmund Jacob Mautz,	*Stewardson, Ill.*
Frank Harry Mehlberg,	*Fenton.*
John Felix Dryden Meighen, B.L., *Upper Iowa University,*	*LeRoy, Minn.*
William Henry Meschede,	*Laynesville, Mo.*
William John Meyers, B.S., *Mich. Agr. Coll.,*	*Fort Collins, Col.*
Guy Alonzo Miller, A.B.,	*Detroit.*
Carl Frank Mohr,	*Wall Lake, Ia.*
Frank Ruhlman Monfort,	*Ithaca.*
John Ambrose Montgomery,	*Macon, Ill.*
Will Cornelius Moody,	*Shelby.*
Elmer William Mulford,	*Detroit.*
Edward Camillus Mulroney,	*Fort Dodge, Ia.*
Lewis Edgar Murphy,	*Elgin, Ill.*
Marl Theron Murray,	*Farmington.*
John William Myers,	*Ithaca.*
Will F. North,	*Pontiac.*
James O'Brien,	*Ann Arbor.*
Sylvester O'Connor,	*Detroit.*
Floyd Russell Olmsted,	*Kalamazoo.*
James Bernard Onen,	*Dowagiac.*
Abraham Philip Oppenheim,	*Dowagiac.*
Julian Arthur Oppenheimer,	*Oskaloosa, Ia.*
August Henry Overschmidt,	*Ann Arbor.*
Harry Williams Paddock, A.B., *Yale University,*	*Springfield, Ill.*
John Marshall Parker, B.L.,	*Ann Arbor.*
Ralph Parker,	*Kansas City, Mo.*
Roy Elton Pettit,	*Ithaca.*
Pleasant Irving Phillips,	*Grand Rapids.*
Frederick Willis Potter,	*Henry, Ill.*
Harry Barent Potter,	*Saginaw, West Side.*
Edward Bruce Powell,	*Spokane, Wash.*
Henry Ormand Probasco,	*Muir.*
Frederick Custer Pugh,	*Spokane, Wash.*

Alonzo Harrison Ranes,	*Taylorville, Ill.*
Leo Max Rappaport,	*Indianapolis, Ind.*
Charles Henry Reynolds,	*Grand Rapids.*
John Alfred Rine,	*Fremont, Neb.*
Franklin Mory Ringolsky,	*Cheyenne, Wyo.*
Lawrence Stevens Roberts,	*Homer City, Pa.*
Arthur LeRoy Robinson,	*Des Moines, Ia.*
William Bennallack Rodda,	*Denver, Col.*
Colonel William Ryan,	*Hiawatha, Kan.*
Earl Sample,	*Greenfield, Ind.*
Rolla Eaton Samson,	*East Berkshire, Vt.*
Orville Joseph Saville,	*Butte, Mon.*
John Reimer Schacht,	*Erie, Pa.*
Thomas Stephen Silliman,	*Hudson, Wis.*
Charles Simons, B.L.,	*Detroit.*
Frank Stanton Simons, A.B.,	*Detroit.*
Russell Mix Simmons,	*Aurora, Ill.*
Charles Clement Smith, B.S., *Ohio University*,	*Pleasant Run, O.*
Edward Woods Soar,	*Audubon, Ia.*
Albert Augustus Stegeman,	*Allegan.*
Nels Emil Stenberg,	*Dowagiac.*
Charles Marsh Steward,	*Plano, Ill.*
John Franklin Stransky,	*Savanna, Ill.*
Frederick Lykes Stringer, A.B., *Florida Agricultural College*,	*Brookville, Fla.*
Richard Huss Sutphen, A.B.,	*Defiance, O.*
Warren C. Swisher,	*Ann Arbor.*
James Symington,	*Detroit.*
Richard Taper, Jr.,	*Lake Linden.*
Jesse Elihu Tarbell,	*Muir.*
O. Clyde Taylor,	*Kansas City, Mo.*
Clayton Tryon Teetzel,	*Chicago, Ill.*
Russell B. Thayer,	*Saginaw.*
David Hollis Thomas, Ph.B., *Ohio University*,	*Cheshire, O.*
Charles Henry Thompson, A.B., *Tarkio College*,	*Tarkio, Mo.*
Clyde Hugh Thompson,	*Pontiac, Ill.*
Nathan Platt Thompson,	*Port Huron.*
Julien Harrington Thomson,	*Port Huron.*
McLane Tilton, Jr.,	*Annapolis, Md.*
Maurice Clark Turner,	*Monroe.*
John Theodore Twohey,	*Burlington, Vt.*
Leon Lewis Tyler,	*Grand Ledge.*
Emma Sarah Tyndale,	*Newberry.*

Samuel Hale Van Horn,	*Three Rivers.*
George von Nieda,	*Fargo, N. Dak.*
Paul Warren Voorhies, B.L.,	*Ann Arbor.*
Roy Judson Wade,	*White Pigeon.*
Harry Anthony Warren,	*Jerseyville, Ill.*
Charles Lee Watson, A.B.,	*Owosso.*
John Edgar Watson,	*Butler, Pa.*
John Stanley Webster,	*Cynthiana, Ky.*
Maurice Weigle,	*Carlyle, Ill.*
David Palmer Weimer,	*Johnstown, Pa.*
Ara Weldon,	*Eaton Rapids.*
Charles Henry Weldon, Jr.,	*Eaton Rapids.*
William Augustus Westfall,	*Savanna, Ill.*
George Samuel Wiley,	*Earlville, Ill.*
Charles Edmund Williams,	*Saline.*
Wellington Wordsworth Withenbury,	*Shelby.*
Walter Hugh Witt,	*Almont.*
Carver Charles Wood,	*Angola, Ind.*
Thomas Robert Woodrow, A.B.,	*Ann Arbor.*
William Grant Woods, A.B., *Ada University,*	*Dunkirk, O.*
Benjamin Smith Wright,	*Utica.*
Theodore John Wulber,	*Lawrenceburgh, Ind.*
James Forbis Yeager,	*Kansas City, Mo.*
Louis Zimmerman,	*Chicago, Ill.*
William Jason Zimmers,	*Racine, Wis.*

FIRST YEAR STUDENTS.

NAME.	RESIDENCE.
Ivan Oliver Ackley,	*Moran.*
William Bert Alexander,	*Addison.*
William Lindsey Allen,	*Sac City, Ia.*
Walter Freeman Ames,	*Chardon, O.*
Norman Kendall Anderson,	*Morgan Park, Ill.*
Robert Talbot Anderson,	*Greenville, O.*
Aaron Andrew Andrews,	*Chicago, Ill.*
Edouard Walter Aniba,	*Milan.*
Oscar Bernard Arie,	*Boone, Ia.*
Harold Lee Arnold,	*Plainwell.*
Frederick Stiles Atwood,	*Saginaw.*
DeLaFayette Meade Austin,	*Liberty, Idaho.*
Standish Backus, A.B.,	*Detroit.*
Walter S. Baer,	*Hancock.*
Frank Bagley,	*Big Rapids.*

Herman William Bailey,	*Brent Creek.*
James Harold Baker,	*Mount Morris, N. Y.*
Charles Clyde Barker,	*Chicago, Ill.*
Curtis Elsworth Baylor,	*Cuba, Ill.*
Clark Donaldson Beggs,	*Pittsburgh, Pa.*
Ralph Clifford Bell,	*Schoolcraft.*
Paul Philip Bennett,	*Rockford, Ill.*
Ralph Waldo Beymer,	*Banfield.*
Herbert Spencer Bigler,	*Wabash, Ind.*
Frank Luther Bihlmeier,	*Port Byron, Ill.*
Gideon Westervelt Blain,	*Plymouth, Ind.*
Fred Mariner Bond,	*North Farmington.*
Walter Huntington Bond,	*Freeport, N. Y.*
Orrin M. Bowen,	*Quincy.*
Daniel Lester Brown,	*Jackson.*
Henry Eugene Burgess,	*Aledo, Ill.*
James William Burns.	*Quincy.*
Thomas Delthorpe Burns, Jr.,	*Park View, N. Mex.*
Henry Catrow,	*Miamisburg, O.*
Thomas Luther Campbell, A.B., *State College of Kentucky,*	*Clinton, Ky.*
Roy Wade Carney,	*Schoolcraft.*
Claude George Cannon, Ph.B., *Albion College,*	*Vicksburg.*
Royal J. Carpenter,	*Angola, Ind.*
Warren Prout Chaney,	*Topeka, Kan.*
Warren Norris Chase,	*Racket River, N. Y.*
James Chenoweth,	*Greenville, O.*
Lester Coffeen Childs, A.B., *Beloit College,*	*Hinsdale, Ill.*
Thomas Henry Christiansen,	*Nicolaus, Cal.*
Earl Francis Cochrane,	*Apollo, Pa.*
Llewellyn Cole,	*Manawa, Wis.*
Paul Michael Collins,	*Peotone, Ill.*
Ray Albert Colwell,	*Lake Odessa.*
Frank Coolbaugh Condon,	*Ann Arbor.*
James Ernest Converse,	*Lapeer.*
Robert McClain Corbit,	*Onslow, Ia.*
Charles David Correll,	*Illiopolis, Ill.*
Allen Brown Creighton, B.S., *Bethany College,*	*Ann Arbor.*
George Henry Curtis,	*Jackson.*
Charles Cary Cushman,	*Otsego.*
Charles Eugene Davis,	*Cottonwood Falls, Kan.*
Manley Daniel Davis,	*Pontiac.*
Alfred James Day,	*Rising Sun, O.*

Maurice Deiches,	*Austin, Pa.*
Ezra Hume Demorest,	*Saginaw.*
David Telford Dennison, B.S., *Ohio Normal Univ.*,	*Coal Glen, Pa.*
Leonard Y. Devries,	*Holland.*
Metus Troy Dickinson, A.M., *Trinity College*,	*Fremont, N. C.*
George Emil Dierssen,	*Chicago, Ill.*
James Joseph Divine,	*Ann Arbor.*
Martin Steedman Dodd,	*Toledo, O.*
Glenna Hunter Doust,	*Allentown, Pa.*
Charles Jacob Dovel, Ph.B.,	*Manistee.*
Charles Harrison Duncan,	*Urbana, O.*
†Francis Dwight Eaman,	*Detroit.*
Ralph Edwards,	*Grand Rapids.*
John Nicholas Ellerman,	*Yankton, S. Dak.*
Franklin Alexander Emrick,	*Ann Arbor.*
Frederic Engelhard,	*Ann Arbor.*
Lloyd Hugo Ericsson,	*Crookston, Minn.*
John William Ewing, Jr.,	*Princeton, Ind.*
Henry C. Fedderson,	*Camanche, Ia.*
Carleton Gillespie Ferris, B.S., *Purdue Univ.*,	*Big Rapids.*
Marion Bertelle Flesher, B.S., *Northern Illinois Normal College*,	*Corydon, Ia.*
Andrew Madison Forrester, B.S., *Bucknell Univ.*,	*Moreland, Pa.*
Claude Colville Frazer,	*Ann Arbor.*
Numa Charles Frenger,	*Las Cruces, N. Mex.*
George Sanborn Gage,	*Saginaw.*
James Brandt Gargett,	*Alma.*
Percy Dow Garver,	*Fremont, O.*
Harry Joseph Porter George,	*Blacklick Station, Pa.*
Harold Guthrie Geyer, Ph.B., *Scarritt College*,	*Neosho, Mo.*
Edward Francis Gibbons,	*Pittston, Pa.*
Ernest Willard Gibson, B.S., *Norwich University*, A.M., *ibid*,	*Londonderry, Vt.*
Floye Victoria Gilmore,	*Elwood, Ind.*
Cornelius Gorman,	*Washington, D. C.*
John Maxwell Gould,	*Ypsilanti.*
William Gozlewski,	*Trinidad, Col.*
Ernest Green,	*Kansas, Ill.*
John Morton Grisier,	*Jefferson, Ia.*
Harry A. Groves,	*Webster City, Ia.*
Harry L. Guggenheim,	*Hillsdale.*
Hermann P. Haase,	*Chicago, Ill.*
Jasper Otis Hait[illegible]	*[illegible]ay.*

Charles Pierce Hall,	*Red Wing, Minn.*
Elmer Wilkie Hammond,	*Williamston.*
Henry Hugo Hansen,	*Chicago, Ill.*
Losh O. Alfonzo Harbaugh, B.S., *Northern Indiana Normal School,*	*Brandt, O.*
William Taylor Hartz,	*Carbondale, Ind.*
Howard Wood Hayes,	*Chicago, Ill.*
Samuel Robert Hazard,	*Des Moines, Ia.*
William Lionel Heap,	*Muskegon.*
John Hubert Heinemann,	*Chicago, Ill.*
Carl Henry Henkel,	*Galion, O.*
George Ojeda Hilzinger, B.S., *University of Arizona,*	*El Paso, Tex.*
John Breckenridge Hitchcock,	*Ware, Mass.*
John Alexander Holland,	*Ann Arbor.*
Henry Davis Hoover,	*Taylorville, Ill.*
Dorsey Reno Hoppe, B.L.,	*Chelsea.*
Adrian Samuel Houck,	*Wichita, Kan.*
James Romeo Hughes, Jr.,	*Fayette, Mo.*
Frank Davis Hunt,	*Santa Ana, Cal.*
Earl Wellington Husted,	*Fenton.*
James Ingebretsen,	*Ogden, Utah.*
D'Arcy Lloyd Johnson,	*Alma.*
Harry Edwin Johnson,	*Quincy, Ill.*
Charles Landon Jones,	*Davisburg.*
Adrian Dwight Joyce,	*Memphis.*
Matthew Joyce,	*Fort Dodge, Ia.*
John Wesley Judson,	*Detroit.*
William John Kass,	*Remsen, Ia.*
Martin Thomas Kelly,	*Pittsburgh, Pa.*
George Henry Kemp,	*Ann Arbor.*
Hugh Keneipp,	*Mount Carmel, Ill.*
James Edward Kerr,	*Los Gatos, Cal.*
Frank Kimmel,	*Lafayette, Ind.*
Walter Leslie Kinney,	*Owosso.*
Lewis Haight Kirby,	*Kalamazoo.*
Harry Huff Kirk,	*Charlotte.*
William Henry Klose,	*Ann Arbor.*
Willard Andrew Knight,	*Battle Creek.*
Fred Charles Knollenberg,	*Quincy, Ill.*
Leonard Fillmore Knowles,	*Saint Louis.*
Samuel Milton Kohn,	*Ogden City, Utah.*
Louis Alvin Kreis, B.L.,	*Cincinnati, O.*

Erles Barnet Kresge,	*Pittston, Pa.*
Theodor Franklin Lake,	*Mansfield, O.*
Ernest Lander,	*Knoxville, Ill.*
Alexander Hector Langell,	*Ann Arbor.*
Stephen Douglas Lardie,	*Old Mission.*
Lewis Larson,	*Manti, Utah.*
Percy Putnam Learned,	*Chester, Vt.*
Otho Lawrence,	*Baltimore, Md.*
Ben Frank Leib,	*Goshen, Ind.*
Edwin George Leipheimer,	*Chicago, Ill.*
George Marsh Lester,	*Massillon, O.*
Thomas George Long,	*Dearborn.*
John Christopher Loucks,	*Grand Rapids.*
Sidney Trofsky Lyon,	*Chicago, Ill.*
Lewis Wilson McCandless, A.B.,	*Ann Arbor.*
William Castellar McClure,	*Pittsburgh, Pa.*
Stanley Kane McDonell,	*Grand Rapids.*
Roy Everette McEwen,	*Leonidas.*
Ellis Johnson McGregor,	*Pontiac, Ill.*
Rufus Cole McKinley, B.S., *Westminster College,*	*New Wilmington, Pa.*
George Fred MacNeal,	*Ann Arbor.*
Judd Henry Matthews,	*Logansport, Ind.*
Harold Solomon Mayer,	*Natchez, Miss.*
Roy Chester Megargel,	*Scranton, Pa.*
Theron Jerson Miller,	*Niles.*
William George Miller,	*Pana, Ill.*
George Alfred Mitiguy,	*East Berkshire, Vt.*
Harry Stewart Moore,	*Ann Arbor.*
James Duval Mosby, A.B., *William Jewell College,*	*Mosby, Mo.*
Walter Motley,	*Coldwater.*
Thomas Irvin Munroe,	*Rushville, Ill.*
Roy Edgar Mygatt,	*Augusta.*
Amil Frank Nerlinger,	*Traverse City.*
Leroy Vernon Newcomb,	*Detroit.*
Giles Benton Nichols,	*Detroit.*
Timothy Francis Nolan,	*Ishpeming.*
Bert Avery Northrop,	*Farmington.*
John Dudley Norton, Jr.,	*Pontiac.*
Schuyler Seager Olds, Jr., Ph.B..	*Lansing.*
Daniel Herman Ortmeyer,	*Evansville, Ind.*
Charles Brainerd Paddock, B.S.,	[illegible]
Francis Vredenburgh Partridge,	[illegible]
Percy Seaman Peck,	[illegible]

Leslie Peck,	*Bascobel, Pa.*
James Blakeley Pell,	*Akron, O.*
Seymour Howe Person,	*Howell.*
Clarence Schunure Piggott,	*Chicago, Ill.*
Edwin Potter,	*Chicago, Ill.*
Fred Wirt Potter,	*Ludington.*
John Logan Price,	*Janesville, Ill.*
Elroy McFarlin Priest,	*Corunna.*
Arnold David Printz,	*Ann Arbor.*
William Cornelius Quinlan, Jr.,	*Kansas City, Mo.*
Edwin Rawden,	*Ann Arbor.*
Frank Wood Reed,	*Evart.*
Allan Warren Reynolds,	*Cassopolis.*
Nelson Andrew Rickert,	*Waterloo, Ill.*
Thomas Gideon Roach,	*Lexington, Ky.*
*Hiel Deuell Rockwell,	*Pontiac.*
Harry Edward Rodgers,	*Grand Rapids.*
Earnest Amos Rogers,	*Galesburg.*
Louis Arthur Root,	*Northville.*
William Burton Russell, B.S., *Northern Indiana Normal School,*	*Adel, Ia.*
Broussaix Sallée,	*Blandville, Ky.*
George Washington Sample,	*Keosauqua, Ia.*
Henry Bernard Schantz,	*Pekin, Ill.*
Frank Douglass Scott,	*Alpena.*
John Walter Scott,	*Monroe.*
Royal Charles Sercomb, A.B., *Beloit College,*	*Milwaukee, Wis.*
Ralph William Murgotten Shauman,	*Benton Harbor.*
Benjamin West Sherwood,	*Kankakee, Ill.*
Sandy Simmons, B.S., *Allen University,*	*Ann Arbor.*
Cally Monroe Smith,	*Saint Johns.*
David Flanders Smith,	*Indianapolis, Ind.*
Ashby Snow,	*Saint George, Utah.*
Mott Gerald Spaulding,	*Freeport.*
Leo D. Spoor,	*Lansing.*
Gottfried Cotton Steinke,	*Atlantic, Ia.*
Orville Bush Stevenson,	*Fort Madison, Ia.*
Alvah Ross Stockwell,	*Pontiac.*
Timothy John Sullivan,	*Joliet, Ill.*
Benjamin Franklin Tait,	*Macon, Ill.*
George Burrows Taylor, A.B., *Leland Stanford, Jr., University,*	*Edwardsville, Ill.*

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* Deceased.

Lewis James Taylor,	*Earlville, Ill.*
Robert Clarkson Taylor,	*Chicago, Ill.*
Gardner M. Thompson,	*Prairie Home, Ill.*
Oliver Jesse Todd,	*Lerna, Ill.*
William Campbell Todd, A.B„ *Lincoln Univ.*,	*Springfield, Mass.*
Thomas Francis Touhill,	*Pittston, Pa.*
John Meredith Trible, A.M., *Bethany College*,	*Bethany, W. Va.*
John Venator,	*Lakeview, Ore.*
Charles Trueman Venners,	*AuSable.*
George Leo Weadock,	*Saginaw.*
Harry Isaac Weinstein,	*Phillipsburg, Mon.*
Samuel Lincoln Weiser,	*Preston, Minn.*
George Granville Whitcomb,	*Morrison, Ill.*
Henry Claire White,	*Decatur.*
Charles Frederick Whitmore, Jr.,	*Kankakee, Ill.*
John Grey Whitten,	*Lansing.*
Clarence Chauncy Wightman, B.S., *Indiana Normal School*,	*Plainfield, Ill.*
Krekel Dillon Wilbanks,	*Mount Vernon, Ill.*
Charles Tobias Winegar,	*Escanaba.*
Joseph Alexander Wilson,	*Jackson.*
John Wixon,	*Moline, Ill.*
Charles Thomas Worley,	*Quincy, Ill.*

SPECIAL STUDENTS.

NAME.	RESIDENCE.
Arthur Gilbert Andrews, C.E., *Norwich Univ.*,	*Northfield, Vt.*
Charles James Anderson,	*Le Roy, N. Y.*
George Henry Anderson,	*Battle Creek.*
Jerome Joseph Crowley,	*Chicago, Ill.*
Moses Cozzens Davis,	*Provo, Utah.*
Prime Evans,	*Lehi City, Utah.*
Gustave Herman Ferbert,	*Cleveland, O.*
Joseph Lewis Harter, A.B., *Indiana University*,	*Flora, Ind.*
Henry Clinton Hill, A.B., *Bowdoin College*,	*Columbus, O.*
Charles Babcock Hossack.	*Odell, Ill.*
Roberts Parker Hudson,	*Lansing.*
Edwin Murray Hulse,	*Fort Wayne, Ind.*
George William Jordan.	*Marinette, Wis.*
Clyde Maxwell Line,	*Sidney, O.*
Thomas Perkins McBride, A.B., *Yale University*,	*Grand Rapids.*
Logan McKee,	*Pittsburgh, Pa.*
Arthur Francis Mullen,	*Oneill, Neb.*

John Paul Pierce,	*Pittsburgh, Pa.*
Tom Corbin Price,	*Saginaw.*
Carl Seward Reed, A.B., *Wabash College,*	*Monticello, Ill.*
William Edward Rydalch,	*Provo City, Utah.*
Charles Veach Smith, A.B., *Wabash College,*	*Crawfordsville, Ind.*
Mortimer Alonzo Sooy,	*Grand Rapids.*
Barnard Joseph Stewart,	*Salt Lake City, Utah.*
Mathonihah Thomas,	*Salt Lake City, Utah.*
Lloyd Earl Thompson,	*Prairie Home, Ill.*
William Edwin Wauhope,	*Bailieboro, Ireland.*
Charles Henry Widman,	*Detroit.*
Edgar Lawrence Zigler,	*Goshen, Ind.*

The students named below, enrolled in the Department of Literature, Science, and the Arts, also pursue studies in the Department of Law:

NAME.	RESIDENCE.
Cuthbert Clarke Adams,	*Kenilworth, Ill.*
Thomas Beath, Jr.,	*Detroit.*
John Chester Bills,	*Allegan.*
George Neil Blatt,	*Elwood, Ill.*
Josephine Bowen,	*Ann Arbor.*
Martin Henry Carmody,	*Grand Rapids.*
William Alfred Comstock,	*Alpena.*
George William Cottrell,	*Detroit.*
Charles Fisher Delbridge,	*Detroit.*
William Benson Harrison,	*Imlay City.*
Harry Patterson Herdman,	*Zanesville, O.*
Charles Benjamin Hole,	*Flushing, N. Y.*
Harry Rogers Hurlbut,	*Chicago, Ill.*
Arthur Mastick Hyde,	*Princeton, Mo.*
John Stuart Lathers,	*Ann Arbor.*
Henry Harrison Lovell,	*Flint.*
James Galbraith McHenry,	*Lansing.*
Archibald Harold McMillan,	*Bay City.*
Paul Broadley Moody,	*Detroit.*
Joe Carlos Osburn,	*Owosso.*
Frederick Eugene Rheinfrank,	*Perrysburg, O.*
Clifford Griffith Roe.	*Ann Arbor.*
James Stuart Taylor,	*Almont.*
Henry Tupper,	*Maple Park, Ill.*
Leonard D'Ooge Verdier,	*Grand-Rapids.*
Clyde Irvin Webster,	*Eaton Rapids.*
Matthew Beale Whittlesey,	*Detroit.*

School of Pharmacy.

FACULTY.

JAMES B. ANGELL, LL.D., *President.*
ALBERT B. PRESCOTT, M.D., LL.D., *Dean.*
WILLIAM H. PETTEE, A.M.
VOLNEY M. SPALDING, PH.D.
OTIS C. JOHNSON, PH.C., A.M.
PAUL C. FREER, PH.D., M.D.
EDWARD D. CAMPBELL, B.S.
ALVISO B. STEVENS, PH.C., *Secretary.*
JULIUS O. SCHLOTTERBECK, PH.C., PH.D.
DAVID M. LICHTY, M.S.
MOSES GOMBERG, SC.D.
ARCHIBALD CAMPBELL, PH.M.

Assistants.

HERMAN E. BROWN, B.S.
GEORGE B. WALLACE, M.D.
EVI D. BENJAMIN, PH.C.
CARL SUNDSTROM.

STUDENTS.

HOLDERS OF FELLOWSHIPS AND OF GRANTS FOR RESEARCH.*

NAME.	RESIDENCE.
Harry Mann Gordin, Ph.D., *University of Berne,* *Holder of Grant from the Committee of Revision and Publication of the Pharmacopœia of the United States,*	San [illegible] Cal.

---

* Paul Ingold Murrill, B.S., *Kentucky State College,* M.S., [illegible] in the Department of Literature, Science and the Arts, [illegible] Pharmacy, under the grant from the Committee [illegible] Pharmacopœia of the United States.

Carl George Hunkel, Ph.G., *University of Wisconsin*, B.S., *ibid.*, *Holder of the Stearns Fellowship in Pharmaceutical Research*, *Milwaukee, Wis.*

RESIDENT GRADUATES.*

NAME.	DEGREE.	CREDIT.	RESIDENCE.
Evi Dunn Benjamin, Ph.C.,	B.S.	92	*Pontiac.*
George Millard Heath, Ph.C.,	B.S.	68	*Milan.*
Frank Carleton Hitchcock, Ph.C,			*Plainwell.*
Charles Willis Johnson, Ph.C.,	B.S.	71	*Ann Arbor.*
Edgar Livingstone Knapp, Ph.C.,			*Saginaw.*
William Kremers, Ph.C.,			*Holland.*
Bessie Gillespie Pierce, Ph.C.,			*West Bay City.*

UNDERGRADUATES.*

NAME.	DEGREE.	CREDIT.	RESIDENCE.
John Newton Adams,	Ph.C.	66	*Sault Ste. Marie.*
Harry Albers,	Ph.C.		*Kirkwood, Mo.*
Harvey Lloyd Baer,			*Akron, O.*
Lyman Frederick Barlow,	Ph.C.	28	*Hastings.*
Ernest Joseph Belser,	Ph.C.		*Ann Arbor.*
Edwin Judson Bennett,	Ph.C.		*New Haven.*
Pearl Charlotte Bennett,	B.S.		*Ecorce.*
Harry Denman Berry,	Ph.C.	25	*Mount Sterling, Ky.*
John Broene,			*Grand Rapids.*
Walter Stephen Brooks,	B.S.	42	*Detroit.*
Mary Liston Brown,	Ph.C.		*Saint Joseph.*
Lavern Otis Cushing,	Ph.C.	31	*Dexter.*
Henry Fredrick Dreyer,			*Port Huron.*
Charles Anton Duerr,	Ph.C.	34	*Benton Harbor.*
Harold James Duncan, Ph.G., *Northwestern University*,			*Kalamazoo.*
Fred Rowland Dunning,	Ph.C.	34	*Vicksburg.*
George Eckel,	Ph.C.	30	*Petoskey.*
Herbert Roy Edmonds, Ph.G., *University of Buffalo*,	B.S.	15	*Mayville, N. Y.*
Edgar Charles Edsill,	Ph.C.		*Jackson.*

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* The abbreviations in the column headed DEGREE indicate the degree for which the student is studying. Where no abbreviation is given, the student is pursuing miscellaneous studies without being registered as a candidate for a degree. The figures in the column headed CREDIT indicate the number of hours of work taken prior to the beginning of the current academic year, 1898–99, and completed without conditions, or credited on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. Compare page 207.

Herbert William Emerson,	Ph.C.		*Burlington, Ont.*
John Estill Ferris,	B.S.		*Ann Arbor.*
Llewellyn Elliott Frazier,			*Muskegon.*
Frank Leonard French,	Ph.C.		*Spring Arbor.*
Harry Gerber,	B.S.		*Fremont.*
†Frederick Aloysius Gill,			*Grand Rapids.*
Charles Nicholas Greusel,	Ph.C.		*Sioux City, Ia.*
Alex Donald Gundry,	Ph.C.	19	*Grand Blanc.*
Oscar Henry Haarer,	Ph.C.	34	*Ann Arbor.*
Jessie Graham Hall, A.B., *Wellesley College,*	Ph.C.	36	*Olean, N. Y.*
Anna Katherine Haller,		5	*Ann Arbor.*
Herbert D. Harrington,	Ph.C.	34	*Parma.*
Edgar Steiner Hauenstein,	Ph.C.	5	*Bluffton, O.*
George Hebert,		20	*South Lake Linden.*
Harry Cook Hewitt,	Ph.C.	34	*Jackson.*
Clinton Whitney Hibbard,	Ph.C.	34	*Azusa, Cal.*
Ralph Hicks,	Ph.C.	34	*Dollar Bay.*
George Delbert Hilton,	Ph.C.	5	*Fremont.*
Warren Winslow Horne,	Ph.C.		*Fayetteville, N. C.*
Philip Kephart,	Ph.C.	34	*Berrien Springs.*
Edward Nicholas Emil Klein,	Ph.C.		*College Point, N. Y.*
Kurt Kling,		10	*Detroit.*
Emory Elias Lewis,	Ph.C.		*Rockford, Ill.*
Eugene Chauvin McConn,	Ph.C.		*Fort Madison, Ia.*
Thomas Ambrose Major,	B.S.	43	*Manistee.*
John Richard Martin,	Ph.C.	5	*Ida.*
Carl Metzger,	Ph.C.	44	*Winchester, Ill.*
Willis Irving Millington,	Ph.C.		*Trenton, Mo.*
Olney Ray Morse,	Ph.C.	34	*Sanilac Centre.*
Ralph Clarke Nowland,			*Leadville, Col.*
Arthur Holmes Norton,			*Ann Arbor.*
Augustus O'Brien,	Ph.C.		*Bessemer.*
David William Paton,	Ph.C.	27	*Almont.*
William Alexander Pearson,	Ph.C.		*Ann Arbor.*
Charles Bert Pettibone,	Ph.C.	37	*Farmington.*
Ernest Tracy Pettis,	Ph.C.	38	*Petoskey.*
Elmer Albert Phillips,	Ph.C.	41	*Sinclairville, N. Y.*
Georgiana Grace Robinson,	Ph.C.	34	*Battle Creek.*
George Rogers,	Ph.C.	34	*Amsterdam, N. Y.*
James Clayton Rusterholtz,	Ph.C	34	*Sturgis.*
William Barié Saladin,		5	*Detroit.*
Hugo Joseph Schellinger,	Ph.C.	34	*Mishawaka, Ind*

Frank Philip Seabury,	B.S.	34	*Paw Paw.*
Paul George Seibert,	Ph.C	26	*Saint Johns.*
Burnette Burgoon Smith,	Ph.C.	24	*Fremont, O.*
Leonard Fred Steenman,	Ph.C.	34	*Howard City.*
George Giles Stilwell,	Ph.C.		*Jonesville.*
Will Earl Sullivan,	Ph.C.	23	*Owosso.*
Arthur Louis Todd,	Ph.C.		*Spring Arbor.*
Sigrid von Zellen,	Ph.C.		*Skanee.*
William Peter Welker,		25	*Leetonia, O.*
Frank Holmes Whiting,	Ph.C.	5	*Union City.*
Fred Leroy Woods,	Ph.C.	34	*Brownsville.*

Homœopathic Medical College.

FACULTY.

JAMES B. ANGELL, LL.D., *President.*
WILBERT B. HINSDALE, A.M., M.D., *Dean.*
OSCAR LESEURE, M.D.
ROY S. COPELAND, A.M., M.D., *Secretary.*
WILLIS A. DEWEY, M.D.
CLAUDIUS B. KINYON, M.D.

OSCAR R. LONG, M.D.
Non-Resident Lecturer on Mental and Nervous Diseases.

STUDENTS.

RESIDENT GRADUATES.

NAME.	RESIDENCE.
Joseph Harris Ball, M.D.,	*Ann Arbor.*
Ida Catura Coler, M.D., *Baltimore Woman's College,*	*Ann Arbor.*
*Frank Orrin Hart, M.D.,	*West Unity, O.*
Lizzie Amanda Hendershott, M.D.,	*Irving.*
Charlie Gifford Jenkins, M.D.,	*Mason.*
Philip Tullius Johnson, M.D., *Cleveland University of Medicine and Surgery,*	*Erie, Pa.*
Henry Eugene Kinyon, M.D., *Hahnemann Medical College of Chicago,*	*Adamsville.*
Ernest Bigelow Maynard, M.D.,	*Ann Arbor.*
Nina Walker Oliver, M.D., *Michigan College of Medicine and Surgery,*	*Salem.*
Samuel Porter Tuttle, M.D.,	*Saint Louis.*
William Rudolph Wegert, M.D., *Curtis Physio-Medical College,*	

---

* Deceased.

FOURTH YEAR STUDENTS.

NAME.	RESIDENCE.
Robert Lloyd Johnson,	*Vassar.*
Dean Wentworth Myers,	*Muir.*
Harry Melvin Piper,	*Denver, Ind.*
William Colfax Roberts, B.S., *University of Nebraska,*	*Lincoln, Neb.*
Paul Thompson,	*Lapeer.*
Tisdale Sartoris Walker,	*Salem.*
Charles Edward Wehrle,	*Toledo, O.*
Floyd Edward Westfall,	*Niles.*
Erle Brice Woodward,	*Lincoln, Neb.*

THIRD YEAR STUDENTS.

NAME.	RESIDENCE.
Russell Ebenezer Atchison,	*Salem.*
Theodore Bacmeister, Jr., A.B.,	*Toulon, Ill.*
John Rutherford Ballah,	*Aylmer, Ont.*
William Henry Belknap,	*Greenville.*
Homer Stephen Carr,	*Winchendon, Mass.*
Grace Arvilla Banks Carter,	*Greene, N. Y.*
Charles Wesley Edmunds,	*Ann Arbor.*
Mina Bianca Gault,	*Dawson, Pa.*
Paul Eber Norman Greeley,	*Waterman, Ill.*
Scott Fraser Hodge,	*Plymouth.*
George Eldridge Mann,	*Hudson.*
Harry Darwin Obert,	*Jackson.*
Joseph Scheidler,	*Owosso.*
Pauline Rundell Wilson,	*Tecumseh.*

SECOND YEAR STUDENTS.

NAME.	RESIDENCE.
Herbert Rodney Allen,	*Ann Arbor.*
Overton William Bradley,	*Ottawa, Ont.*
Archie D. Carpenter,	*Cadillac.*
Edgar Clarence Dunning, A.B., *Albion College,*	*Albion.*
Sydney DeVere Hall,	*Bay City.*
Albertus Taibae Hoxie,	*Traverse City.*
Francis Hebron Husband,	*Palgrave, Ont.*
Albert Lynch,	*Flushing.*
Thomas Richard McHugh,	*Bay City.*
James McKee,	*Laingsburg.*
Arthur Selwyn Moore,	*Bay City.*
Gilbert Roy Owen,	*Saint Albans, Vt.*

Flora May Phelps,	*Plainfield, N. J.*
Carl Frost Raver,	*Dallas City, Pa.*
George Anthony Robertson,	*Battle Creek.*
William Theodore Rowley,	*Maple Rapids.*
Evelyn Scott,	*Detroit.*
Joaquin Mokelumne Stevens, A.B., *Toronto University*,	*Chatham, Ont.*
Clarence Mason Williams,	*Flint.*

The following students, enrolled in the Department of Literature, Science, and the Arts, are also pursuing studies as second year students in the Homœopathic Medical College:

NAME.	RESIDENCE.
Nelson Walter Thompson,	*Detroit.*
Theodore Zbinden,	*Toledo, O.*

FIRST YEAR STUDENTS.

NAME.	RESIDENCE.
Henry J. Burrell,	*Ypsilanti.*
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College of Dental Surgery.

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Benjamin John Miller,	*Negaunee.*
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James J. Pe[illegible]	*Tyrone.*
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Carlos Joseph Light,	*Calumet.*
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John Edwin McDonough,	*Fair Haven, O.*
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Clare Charles Markey,	*Port Huron.*
Kenneth Sprague Markham,	*Ann Arbor.*
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Karl John Martindale,	*Fulton, Ill.*
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Clarence Gardner Parker,	*Mount Clemens.*
Albert John Parsal,	[illegible] *Harbor.*
Fred Clarence Phelps,	[illegible]

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Willis Briggs Woodruff,	*Battle Creek.*

Summer Schools of 1898.

IN THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS, AND IN THE DEPARTMENT OF LAW.

STUDENTS.

Note.—Italic letters following a name show that the student is attending the University in the year 1898–99, and is enrolled in the department indicated:—*a* denoting Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy; *h*, Homœopathic Medical College; *d*, College of Dental Surgery. The letter *G* shows that the student was working under the direction of the Administrative Council of the Graduate School.

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Frank Peyton B[illegible]	*Saint Johns.*

Madge Genevieve Bunday, *a*,	*Saint Johns.*
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Harold Swift Campbell,	*Napoleon, O.*
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Lizzie Crosby,	*Albion.*
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Belva Mary Herron, B.L.,	[illegible]
Ben Simms Herring, *m*,	[illegible]
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Clifford Griffith Roe, *a,*	*Ann Arbor.*
Ella Rogers,	*Petoskey.*
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Harley Halsted Seeley, *a,*	*Owosso.*
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Mary Duty Spencer, A.B., *Vassar College, G,*	*Detroit.*
Joseph Gardner Standart, *a,*	*Detroit.*
Karl Krenkell Stevens,	*Saginaw.*
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Carl Sundstrom, *a,*	*Trenton.*
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Kate Rosette Thompson,	*Grand Rapids.*
Ora Travis,	*Union City.*
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Department of Law.

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Louis Chancy Ling,	*Detroit.*
Milton James McVean, *l,*	*Fenton.*
William Maurice Mertz,	*Detroit.*

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Edwin Jacob Mosser, A.M., *Muhlenberg College, l,*	*Stines Corner, Pa.*
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Albert Hastings Pontius,	*Ashtabula, O.*
John Schlatter,	*Toledo, O.*
Elmer Ellsworth Slick,	*Wabash, Ind.*
Henry Smith Tanner, *l,*	*Payson, Utah.*
Emma Sarah Tyndale, *l,*	*Newberry.*
William Willis Warner,	*Saginaw.*
Charles Lee Watson, A.B., *l,*	*Owosso.*

Summary of Students.

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

Holder of Fellowship	1	
Resident Graduates	70	
*Candidates for an Advanced Degree, enrolled in the Department of Medicine and Surgery	2	
Graduates Studying *in Absentia*	2	
Undergraduates:		
Candidates for a Degree	1065	
Students not Candidates for a Degree	145	1285

DEPARTMENT OF ENGINEERING.

Resident Graduates	2	
Graduates Studying *in Absentia*	3	
Undergraduates	240	245

DEPARTMENT OF MEDICINE AND SURGERY.

Resident Graduates	2	
Fourth Year Students	88	
Third Year Students	102	
Second Year Students	86	
First Year Students	138	
Special Students	2	
*Students enrolled in other Departments of the University:		
Fourth Year Student in Medicine	1	
Third Year Students in Medicine	4	
Second Year Students in Medicine	8	
First Year Students in Medicine	14	445

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* Included in the Summary by States on pages 362 and 363 only in the Department in which they are enrolled.

DEPARTMENT OF LAW.

Resident Graduates	3	
Third Year Students	233	
Second Year Students	229	
First Year Students	244	
Special Students	29	
*Students enrolled in the Department of Literature, Science, and the Arts	27—	765

SCHOOL OF PHARMACY.

Holders of Fellowships and of Grants for Research	2	
Resident Graduates	7	
Undergraduates:		
Candidates for a Degree	59	
Students not Candidates for a Degree	13—	81

HOMŒOPATHIC MEDICAL COLLEGE.

Resident Graduates	11	
Fourth Year Students	9	
Third Year Students	14	
Second Year Students	19	
First Year Students	13	
*Students enrolled in the Department of Literature, Science, and the Arts	2—	68

COLLEGE OF DENTAL SURGERY.

Resident Graduates	3	
Seniors	69	
Juniors	76	
Freshmen	86—	234
		3123
Deduct for names counted more than once		64
Total, exclusive of Summer Schools		3059

SUMMER SCHOOLS OF 1898.

In Department of Literature, Science, and the Arts	204		
In Department of Law	31—	235	
†Deduct for students enrolled in 1898–9 in some department of the University		102—	133
Grand total			3192

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* See foot note on pa [illegible]

† Not included in [illegible]

SUMMARY BY STATES AND BY DEPARTMENTS.

	Lit. Dept.	Engineering	Med. and Surg.	Law	Pharmacy	Homœopathic	Dental	Summer Schools	Total
Michigan	890	172	215	285	58	44	146	64	*1874
Illinois	149	27	17	111	2	2	8	12	328
Ohio	48	7	43	47	4	2	22	27	†200
Indiana	30	4	16	47	1	4	3	8	113
Pennsylvania	18	2	24	36	—	3	—	3	86
New York	28	6	23	13	5	1	5	4	85
Iowa	29	5	12	32	2	—	1	3	84
Missouri	24	2	5	20	2	—	1	3	57
Wisconsin	4	3	10	11	1	—	9	1	39
California	3	—	2	14	2	—	9	1	31
Kansas	9	—	3	11	—	—	—	1	24
Colorado	7	3	—	8	1	—	3	—	22
Minnesota	7	3	3	5	—	—	4	—	22
Utah	2	2	—	17	—	—	1	—	22
Kentucky	3	—	4	11	1	—	—	2	21
Massachusetts	3	—	8	4	—	1	—	—	16
Nebraska	2	1	2	8	—	2	—	—	15
Montana	1	—	2	8	—	—	—	—	11
Vermont	1	—	2	6	—	1	—	—	10
Washington	3	—	—	6	—	—	—	—	9
Oklahoma Territory	2	—	1	3	—	—	—	1	7
Texas	1	—	—	4	—	—	—	2	7
North Dakota	—	—	3	3	—	—	—	—	6
New Jersey	2	—	1	1	—	1	—	—	5
West Virginia	—	—	1	4	—	—	—	—	5
Georgia	—	—	3	—	—	—	1	—	4
North Carolina	—	—	2	1	1	—	—	—	4
Rhode Island	—	—	2	1	—	—	—	1	4
Tennessee	2	1	1	—	—	—	—	—	4
District of Columbia	—	2	—	1	—	—	—	—	3
Idaho	1	—	—	2	—	—	—	—	3
Maryland	1	—	—	2	—	—	—	—	3
New Hampshire	2	—	—	1	—	—	—	—	3
New Mexico	1	—	—	2	—	—	—	—	3
Oregon	—	—	—	3	—	—	—	—	3
Alabama	1	—	—	1	—	—	—	—	2
Arkansas	1	—	—	1	—	—	—	—	2
Connecticut	—	—	2	—	—	—	—	—	2
Indian Territory	1	—	—	1	—	—	—	—	2
Maine	—	—	1	—	—	—	1	—	2
Mississippi	—	1	—	1	—	—	—	—	2
South Dakota	1	—	—	1	—	—	—	—	2
Wyoming	1	—	—	1	—	—	—	—	2

*Deduct 5 for names counted twice.

†Deduct 1 for name counted twice.

Florida	—	—	—	1	—	—	—	—	1
Louisiana	—	—	1	—	—	—	—	—	1
Nevada	1	—	—	—	—	—	—	—	1
South Carolina	—	—	1	—	—	—	—	—	1
Virginia	—	—	1	—	—	—	—	—	1
Ontario	2	—	3	—	1	5	13	—	24
Germany	—	—	—	—	—	—	5	—	5
Japan	2	1	1	1	—	—	—	—	5
Mexico	—	3	—	—	—	—	—	—	3
British Columbia	—	—	—	1	—	—	—	—	1
Egypt	—	—	1	—	—	—	—	—	1
England	—	—	—	—	—	—	1	—	1
Ireland	—	—	—	1	—	—	—	—	1
Province of Quebec	—	—	—	—	—	—	1	—	1
Russia	—	—	1	—	—	—	—	—	1
Turkey	—	—	1	—	—	—	—	—	1
Total	1283	245	418	738	81	66	234	133	*3198

*Deduct 6 for names counted twice.

PERRY SCHOLARSHIP FUND.

The Perry Scholarship Fund was established in 1898 by the Alumni Association of the Ann Arbor High School, in memory of Walter Scott Perry, a graduate of the University in the class of 1861, and for twenty-seven years Superintendent of the Ann Arbor Schools.

The purpose of the fund is to assist graduates of the school in procuring an education in the Department of Literature, Science, and the Arts of the University of Michigan. It is administered as a Loan Fund, repayments to be made by beneficiaries under regulations prescribed by the Board of Directors of the High School Alumni Association.

Officers of the Alumni Association.

President	Levi L. Barbour	'63	*Detroit.*
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Board of Directors.

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G. Carl Huber	1899
Elias F. Johnson	1900
Louis P. Jocelyn	1901
Levi L. Barbour	1902
Andrew C. McLaughlin	1903

Index of University Officers.

Abbott, W C., 17, 78, 79, 263.
Adams, H. C., 10, 15, 86, 87, 195, 261, 319.
Allen, J. R., 16, 158, 159, 297.
Anderson, E. J., 19, 346.
Angell, J. B., 8, 9, 87, 88, 120, 195, 261, 297, 305, 319, 339, 343, 346.
Arneill, J. R., 19, 306.

Bachelder, F. S., 20, 263.
Baker, H. B., 15, 306.
Baldwin, F. A., 20, 306.
Bell, S., 15, 306.
Beman, W W., 10, 88, 89, 246, 261.
Bender, H., 21.
Benefiel, A. H., 19, 263.
Benjamin, E. D , 19, 339.
Bibbins, J. R., 21.
Bigelow, M. M., 15, 192, 319.
Bigelow, S. L., 17, 92, 93, 263.
Biggar, H. F., 226.
Bliss, C L., 18, 247, 306.
Bogle, T. A., 12, 190, 191, 201, 319.
Boucke, E., 17, 70, 71, 72, 263.
Bourland, B. P., 17, 67, 68, 69, 70, 263.
Bowman, W. H., 21, 346.
Breakey, J. F., 20, 306.
Breakey, W F., 13, 305.
Brewster, J. H., 12, 191, 319.
Briggs, J. P., 18.
Brown, H. E., 18, 94, 96, 153, 154, 247, 263, 339.
Butler, J. M., 19, 263.
Butterfield, R. W., 8.
Butts, W. H., 17, 88, 89, 152, 263.

Campbell, A., 17, 95, 96, 210, 211, 247, 263, 339.
Campbell, E. D., 12, 94, 95, 96, 97, 154, 155, 209, 262, 297, 339.
Carhart, H. S., 10, 90, 91, 152, 160, 212, 261, 297.
Carrow, F., 10, 305.
Christian, E. A . 15, 306.
Clark, H. W., 18.
Clayberg, J. B., 15, 192, 319.
Cleverdon, E., 19, 263.
Cocker, W. J., 8.
Cole, L. J., 21.
Cook, P. N., 8.
Cooley, C. H., 14, 86, 87, 262.
Cooley, M. E., 9, 158, 159, 160, 297.
Cooley, T. B , 19, 306.
Coons, N. D., 20, 306.
Copeland, R. S., 12, 220, 343.
Cowie, D. M., 18, 305.
Craig, J. A , 11, 65, 66, 67, 262.
Cushny, A. R , 11, 173, 211, 305.

Darling, C. G., 18, 305, 346.
Davis, J. B., 11, 156, 157, 158, 297.
Davis, R. C., 10, 88, 261.
Dean, H. S , 8.
Demmon, I. N., 9, 74, 75, 76, 261.
Denison, C. S., 10, 109, 110, 155, 156, 158, 261, 297.
Dennison, W., 16, 62, 63, 64, 245, 263.
De Pont, P. R., 13, 67, 68, 69, 262, 297.
Dewey, W. A , 12, 343.
De Witt, L. M., 20, 306.
Diekhoff, T., 14, 262.
Dithridge, L. M., 20, 306.
Dock, G., 11, 173, 305.
D'Ooge, M. L., 9, 28, 60, 61, 120, 261.
Doolittle, H. M., 20, 306.
Dorrance, W. H., 9, 346.
Dow, E. W., 14, 78, 79, 262.
Drake, J. H., 13, 16, 36, 62, 63, 64, 195, 262, 320.
Dwyer, J. W., 16, 201, 202, 319.

Edwards, W M., 15, 306.
Effinger, J. R., 14, 67, 68, 69, 245, 262.

Farr, G. A., 8.
Farrah, A. J., 16, 201, 319.
Finney, B. A., 18.
Fitzpatrick, K., 15, 262.
Fletcher, F. W., 8.
Florer, W. W., 16, 70, 71, 72, 263.
Fluegel, E. J., 17, 70, 71, 72, 263.
Francois, V. E., 14, 67, 68, 69, 262.
Frank, C. D., 17, 151, 297.
Freer, P. C., 11, 92, 93, 208, 209, 261, 305, 339.

Gauss, C. B., 19.
Glover, J. W , 14, 88, 89, 152, 262, 297.
Goddard, E. C., 14, 88, 89, 152, 262, 297.
Gomberg, M., 17, 94, 95, 96, 97, 154, 210, 211, 263, 339.
Goulding, H. J., 14 109, 110, 15
297
Granrud, J. E., 18, 62, 6
Greene, C. E., 9, 157, 1
Grimes, G. L., 18, 158,
Guenther, A. E., 18,
Guthe, K. E., 14, 9
160, 246, 247, 262

Hadzsits, G. D., 20, 62, 63, 263.
Hall, A., 11, 99. 155. 261, 297.
Hall, A. G., 14, 88, 89, 152, 246, 262, 297.
Hall, L. P., 16. 346.
Hammond, J. E., 8.
Heard, C. F., 20, 306.
Hempl, G., 12, 70, 71, 73, 74, 262.
Hench, G. A., 12, 70, 71, 72, 73, 245, 262.
Herdman, W. J., 10, 15, 192, 305, 320.
Hess, W. H., 19.
Higley, G. O., 13, 91, 92, 93, 153, 208, 209, 247, 262, 297.
Hinsdale, B. A., 10, 84, 85. 261
Hinsdale, W. B., 12, 220, 343.
Hoff, N. S., 11, 346.
Howell, R. B., 20, 346.
Huber, G. C., 13, 108, 112, 262, 305, 346.
Hudson, R., 10, 15, 79, 80, 120, 195, 261, 319
Hunt, A. L., 18, 109, 110, 155, 156, 263.
Hutchins, H. B., 11, 114, 190, 191, 199, 319.

Jeffers, S. A., 20, 62, 63, 263.
Johnson, C. W., 21, 306.
Johnson, E. F., 12, 190, 191, 192, 201, 305, 319.
Johnson, J. L., 19, 306.
Johnson, O. C., 10, 94, 96, 153, 154, 209, 210, 261, 297, 305, 339.
Johnston, J. B., 17, 101, 105, 106, 107, 263.
Jones, C. D., 16, 91, 153, 160, 297.
Jordan, F. P., 18.

Kelsey, F. W., 10, 62, 63, 64, 120, 261.
Kiefer, H., 8.
Kinyon, C. B., 12, 343.
Kirchner, O., 11, 190, 191, 319.
Klingmann, T., 19, 306.
Knowlton, J. C., 10, 190, 191, 192, 201, 319.

Lahuis, C. K., 18, 305.
Lane, V. H., 12, 36, 190, 191, 201, 319.
Langdon, F. E., 17, 105, 106, 263.
Lautner, J. E., 17, 151, 263, 297.
Lawton, C. D., 8.
Leseure, O., 12. 343.
Levi, M., 13, 67, 68, 69, 262.
Lichty, D. M., 14, 92, 93, 153, 209, 247, 262, 297, 305, 339, 346.
Lillie, F. R., 14, 101, 105, 106, 107, 262.
Lindau, A. E., 21.
Lloyd, A. H., 13, 81, 82, 83, 114, 199, 262.
Loeffler, J., 20.
Lombard, W. P., 11, 109, 212, 261, 305.
Long, O. R., 15, 343.
Lynds, J. G., 18, 305.

McAlvay, A. V., 15, 190, 191, 319.
McDonald, W. R., 21, 156.
McInnis, N. K., 20, 263.
Mac Lake, W., 20.
McLaughlin, A. C., 11, 15, 79, 80, 114, 195, 199, 246, 261, 319.
McMurrich, J. P., 11, 36, 107, 108, 262, 305.
Markley, J. L., 13, 88, 89, 152, 246 262, 297.
Martin, J. N., 11, 305.
Maynard, E. B., 20.
Meader, C. L., 14, 63, 262.
Mechem, F. R., 11, 114, 190, 191, 199, 319.
Mensel, E. H., 14, 70, 71, 72, 243, 245, 262.
Mosher, E. M., 12, 98, 99, 262.
Munson, J. D., 15, 306.
Munson, W. H., 247, 248.

Nagler, F. W., 16, 305.
Nancrede, C. B., 10, 173, 305.
Newcombe, F. C., 13, 101, 102, 103, 104, 262.
Nivling, W. C., 20, 306.
Novy, F. G., 12, 97, 98, 112, 173, 211. 262, 305, 346.

Page, R. H., 20.
Parke, H. H., 19.
Pattengill, A. H., 9, 36, 60, 61, 120, 201.
Patterson, G. W., 13, 262, 297.
Peet, B. W., 19, 263.
Pettee, W. H., 9, 99, 100, 101, 155, 161, 212, 261, 297, 339.
Pillsbury, W. B., 16, 81, 82, 83, 84, 246, 263.
Pollock, J. B., 17, 101, 102, 103, 247, 263.
Pond, R. H., 21.
Prescott, A. B., 9, 94, 95, 97, 154, 210, 211, 261, 305, 339.
Purfield, H. T., 21, 156.

Rabethge, C. A., 16, 263.
Rebec, G. 14, 81, 82, 83, 262.
Reed, F. F., 15, 192, 320.
Reed, J. O., 13, 90, 91, 152, 153 159, 212, 243 246, 247, 262, 297.
Reeve, H., 14.
Reighard, J. E., 11, 105, 106, 107, 261.
Roedder, E. C., 16, 70, 71, 72, 263.
Rolfe, J. C., 11, 36, 62, 63, 64, 245, 262.
Rood, J. R., 17, 201, 202, 319.
Russell, I. C., 11, 100, 101, 155, 261, 297.

Sargent, H. E., 19.
Schlotterbeck, J. O., 13, 102, 103, 208, 339.
Scott, F. N., 13, 74. 75, 76, 246, 262.
Severance, H. O., 19.
Sherman, P. L., 16, 92, 93, 209, 263, 297.
Smith, D. T., 226.
Smith, S. W., 18, 151.
Smoots, J. M., 21, 156.
Snow, J. W., 17, 102, 103, 104, 263.
Snyder, A. G., 17, 35, 263.
Solis, J. C., 18, 305.
Soule, H., 8.
Spalding, V. M., 10, 103, 104, 261, 339.
Spitzley, W. A., 19, 306.
Stanley, A. A., 10, 38, 77, 78, 261.
Stevens, A. B., 13, 208, 339.
Stevens, R. C., 17, 158, 159.
Strauss, L. A., 14, 74, 75, 245, 262.
Sturgis, J. W., 20, 62, 63, 263.
Sundstrom, C., 19, 263, 339.
Swan, H. H., 15, 191, 319.

Taft, J., 9, 346.
Tatlock, J. S. P., 16, 74, 75, 263.
Taylor, C G., 12, 156, 158, 297.
Taylor, F. M., 13, 86, 87, 114, 199, 246, 262.
Thieme, H. P., 18, 67. 68, 69, 263.
Thompson, B. M., 10, 190, 191, 201, 319.
Timberlake, H. G., 17, 101, 102, 103, 263.
Tower, C. V., 18, 81. 82, 83, 263.
Trowbridge, A., 17, 90, 91, 152, 153, 159, 160. 263, 297.
Trowbridge, P. F., 16, 97, 262.
Trueblood, T. C., 11, 76, 77, 194, 246, 262, 319.
Tuttle, S. P., 20.

Upjohn, L. N., 20, 306.

Vance, J. H , 14.
Vaughan, V. C., 10. 15, 97, 98, 261, 305, 319.
Wade, J. H., 8.
Wait, W. H., 16, 60, 61, 64, 65, 262.
Waite, H. H., 16, 248, 305.
Walker, A. H., 15, 192, 320
Wallace, G. B., 19. 208. 306, 339.
Warthin, A. S., 14, 305.
Watling. J. A., 9. 346.
Wenley, R. M., 12, 81, 82. 83, 84, 262.
White, A. H., 16, 94, 96, 97, 154, 263, 297.
Whitney, A. W., 17, 88, 89, 152, 263.
Wilbur, F. J., 21.
Wilgus, H. L , 12, 189, 190, 201, 202, 319.
Winkler, M., 13, 70, 71, 72, 262.
Winslow, R. A , 21, 156.
Wood, N. A., 18.
Worcester, D. C., 13, 107, 262.
Wrentmore, C. G., 14, 109, 110, 155, 156, 297.

Young, R. T., 21, 263.
Yutzy, S. M., 16, 107, 108, 305, 346.

Ziwet, A., 13, 88, 89, 262, 297.

General Index.

Academic Year, 6.
Acoustics, Instruction in, 90, 153, 212.
Adams Jewett Collection, 27.
Admiralty Law, Instruction in, 191.
Admission Conditions, Rules concerning, 122, 169, 219.
Admission, Requirements for:
  In College of Dental Surgery, 231.
  In Department of Engineering, 133.
  In Department of Law, 186, 189, 201.
  In Department of Literature, Science, and the Arts, 43.
  In Department of Medicine and Surgery, 168.
  In Graduate School, 127.
  In Homœopathic Medical College, 218.
  In School of Pharmacy, 204.
Advanced Standing, Admission to, 49, 136, 170, 188, 206, 219, 233.
Aesthetics, Instruction in, 82, 83.
Algebra, Instruction in, 88, 89, 139, 152, 246.
Algebra, Requirement for Admission, 46, 135, 169, 170, 187, 205, 219, 232.
Alumni Association, Officers of, 364.
Alumni Day, 6.
Ames Herbarium, 27.
Analytic Geometry, Instruction in, 88, 89, 139, 152, 246.
Anatomical Laboratory, 176, 227.
Anatomical Museum, 176, 227.
Anatomy, Instruction in, 105, 106, 107, 171, 172, 176, 223, 224, 234, 235.
Angell, Sarah Caswell. Hall, 35.
Anglo Saxon, Instruction in, 72, 73, 74.
Announcements for 1899-1900, 6.
Annual Fee, 39.
Antiquities, Instruction in, 61, 64.
Arabic, Instruction in, 66.
Archæological Collection, 28.
Archæology, Instruction in, 64.
Arithmetic, Requirement for Admission, 169, 170, 187, 205, 219, 232.
Art Collection, 28.
Assaying, Instruction in, 94.
Assyrian, Instruction in, 66.
Astronomy, Instruction in, 99, 155.
Astronomy, Requirement for Admission, 135, 136.
Athletic Association, 36.
Athletics, Requirement in, 35, 110.
Athletics, Supervision of, 36.
Autopsies, 180.
Bachelor of Arts, Degree of, 23, 115.
Bachelor of Laws, Degree of, 23, 197.
Bachelor of Letters, Degree of, 23, 117.
Bachelor of Philosophy, Degree of, 23, 115.
Bachelor of Science, Degree of, 23, 116, 163, 204, 205, 215.
Bacteriology, Instruction in, 97, 171, 175, 211, 223, 235, 238, 247.
Bagley Collection of Medallions, 29.
Baldwin Lectures, 34.
Barbour Gymnasium, 35.
Beal-Steere Collections, 27, 28.
Bibliography, Instruction in, 88.
Biology, Instruction in, 101, 102, 103, 105, 106.
Biology, Requirement for Admission, 169, 170.
Board, Cost of, 40.
Board of Control of Athletics, 36.
Board of Regents, 8, 22.
Botanical Collection, 27.
Botanical Laboratory, 32.
Botany, Instruction in, 102, 208, 247.
Botany, Requirement for Admission, 46, 48, 49, 135, 169, 205, 219, 232.
Buhl Law Library, 198.

Calculus, Instruction in, 88, 89, 139, 152, 246.
Central Debating League, 37.
Certificate, Admission on—See Diploma.
Certificates of Attendance, 197.
Chemical Engineering, 165.
Chemical Laboratories, 30, 177, 227.
Chemical Physics, Instruction in, 92, 93.
Chemical Technology, Instruction in, 94, 96, 97, 154.
Chemistry, Instruction in, 91, 92, 97, 139, 153, 171, 172, 175, 208, 209, 210, 211, 223, 234, 235, 236, 238, 247.
Chemistry, Museum of, 27.
Chemistry, Requirement for Admission, 48, 49, 135, 170, 205, 232.
Chicago Alumni Medal, 38.
Children, Diseases of, 222.
Chinese Exhibit, 25, 27, 28.
Choral Union, 38.
Christian Association, 34.
Churches in Ann Arbor, 34.
Civil Authorities, Relation of Students to, 29.
Civil Engineer, Degree of, 23, 166.

Civil Engineering, 110, 157, 163.
Civil Government, Requirement for Admission, 187.
Class Day, 6.
Classical Fellowship, 120.
Class of 1894 Scholarship, 121.
Class of 1897 Scholarship, 122.
Class of 1898 Scholarship, 122.
Clinical Instruction, 172, 228, 235.
Clubs, Boarding, 40.
College of Dental Surgery, 231, 346.
Combined Literary and Law Studies, 113, 199.
Combined Literary and Medical Studies, 111, 174, 220.
Commencement, 6.
Constitutional History, Instruction in, 78, 79, 80, 198.
Constitutional Law, Instruction in, 79, 191, 195.
Conveyancing, Instruction in, 194.
Copyright Law, Instruction in, 192.
Courses of Instruction, 59, 128, 150, 161, 171, 175, 189, 195, 201, 207, 213, 220, 234, 238, 244.
Coyl Bequest, 24.
Credit, Hour of, 59, 115, 150, 163, 207, 244.
Credit System, Graduation on, 114, 163, 215.
Crystallography, Instruction in, 212.
Custer Collection, 26.

Debating League, 37.
Degrees Conferred in 1898, 249.
Degrees, Higher, 129, 165, 197, 199, 239.
Degrees, Requirements for:
  In College of Dental Surgery, 237, 238.
  In Department of Engineering, 163.
  In Department of Law, 197.
  In Department of Literature, Science, and the Arts, 114.
  In Department of Medicine and Surgery, 174.
  In Graduate School, 129.
  In Homœopathic Medical College, 226.
  In School of Pharmacy, 213, 215.
Degrees, Rules Concerning, 130.
Demonstration Courses, 40, 172, 183, 222.
Dental Laboratory, 240.
Dental Library, 24, 239.
Dental Museum, 239.
Dental Surgery, College of, 231, 346.
Dentistry, Instruction in, 234, 235, 236, 237.
Department of Engineering, 132, 297.
Department of Law, 185, 319.
Department of Literature, Science, and the Arts, 42, 261.
Department of Medicine and Surgery, 168, 305.
De Pue Collection, 28.
Dermatology, Instruction in, 173.
Descriptive Geometry, Instruction in, 109, 156.
Detroit High School Scholarships, 120.
Diploma, Admission on, 53, 139, 170, 186, 204, 218, 231.
Diploma Fee, 40
Diploma Schools, List of, 54, 139.
Discipline, 39, 125.
Dispensary Instruction, 173.
Doctor of Dental Science, Degree of, 23, 239.
Doctor of Dental Surgery, Degree of, 23, 237.
Doctor of Medicine, Degree of, 23, 174, 226.
Doctor of Philosophy, Degree of, 23, 129.
Doctor of Science, Degree of, 23, 129.
Dorsch Library, 23.
Douglass Library, 24, 198.
Drawing, Instruction in, 109, 139, 155, 248.

Election of Studies, Rules concerning, 122, 161.
Electrical Engineer, Degree of, 23, 166.
Electrical Engineering, 110, 146, 159, 164.
Electrical Laboratory, 149.
Electricity, Instruction in, 90, 91, 146, 152, 153, 159, 212.
Electric Light Plant, 149.
Electrotherapeutical Laboratory, 177.
Electrotherapeutics, 172, 175.
Elisha Jones Classical Fellowship, 120.
Elocution, Instruction in, 76, 194, 246.
Embryological Laboratory, 178.
Embryology, Instruction in, 105, 171, 224.
Engineering, Chemical, 165.
Engineering, Civil, 110, 157, 163.
Engineering Department, 132, 297.
Engineering, Electrical, 110, 146, 159, 164.
Engineering Laboratory, 148.
Engineering, Marine, 110, 145, 160.
Engineering, Mechanical, 110, 158, 164, 248.
Engineering, Mining, 110, 161.
Engineering Shops, 147.
Engineering Society, 150.
English, Instruction in, 73, 74, 139, 151, 245.
English, Requirement for Admission, 44, 48, 49, 134, 169, 170, 187, 204, 205, 219, 232.
Ethics, Instruction in, 81, 83.
Ethnological Collection, 28.
Examination, Fee for, 40, 126, 166.
Examinations for Admission, Places and Times of:
  In College of Dental Surgery, 6, 233.
  In Department of Engineering, 6, 138.
  In Department of Law, 6, 189.
  In Department of Literature, Science, and the Arts, 6, 52.
  In Department of Medicine and Surgery, 6, 169.
  In Homœopathic Medical College, 6, 219.
  In School of Pharmacy, 6, 207.
Examinations, Rules concerning, 124, 146, 173, 192, 213, 225, 237.
Expenses, 39, 126, 131, 166, 183, 200, 202 217, 227, 229, 241, 244.

Faculties, Members of, 9.
Faculty of College of Dent

Faculty of Department of Engineering, 297.
Faculty of Department of Law, 319.
Faculty of Department of Literature, Science, and the Arts, 261.
Faculty of Department of Medicine and Surgery, 305,
Faculty of Homœopathic Medical College, 343.
Faculty of School of Pharmacy, 339.
Fees– See Expenses.
Fellowships, 120, 216.
Ferry Testimonial, 38.
Foley Guild, 34.
Ford Messer Bequest, 24.
Forge Shop and Forging, 141, 148, 156.
Foundry, 140, 147, 156.
French, Instruction in, 67, 139, 151, 245.
French, Requirement for Admission, 47, 48, 49, 134, 170.
Frieze Memorial Organ, 38.

Garrigues Collection, 27.
General Library, 23.
Goedesy, Instruction in, 143, 157.
Geological Collection, 25.
Geological Laboratory, 32.
Geology, Instruction in, 100 155.
Geometry, Instruction in, 88, 89, 109, 139, 152, 156, 246.
Geometry, Requirement for Admission, 46, 135, 169, 170, 187, 205, 219, 232.
German, Instruction in, 70, 139, 151, 245.
German, Requirement for Admission, 47, 49, 134, 170, 205.
Goethe Library, 23.
Gothic, Instruction in, 72.
Graduate Courses:
  In College of Dental Surgery, 238.
  In Department of Engineering, 165.
  In Department of Law, 189, 195.
  In Department of Literature, Science, and the Arts –See Graduate School.
  In Department of Medicine and Surgery, 175, 184.
  In Homœopathic Medical College, 226, 229.
Graduate School, 42, 127.
Graduates of 1898, 249.
Graduation, Requirements for—See Degrees.
Grand Rapids High School Scholarships, 122.
Graphics, Instruction in, 144, 157, 158.
Greek, Instruction in, 60, 65, 245
Greek, Requirement for Admission, 47.
Gymnasiums, 34, 40.
Gynæcology, Instruction in, 172, 173, 221, 224, 225.

Hagerman Collection, 23.
Harrington Collection, 27.
Harris Hall, 34.
Harrison Scholarships, 121.
Heat, Instruction in, 90, 152, 212.
Hebrew, Instruction in, 65, 66.
Hellenistic Greek, Instruction in, 65.
Herbaria, 27.
Highway Construction, Instruction in, 143.
Histological Laboratory, 178, 227, 236.
Histology, Instruction in, 108, 171, 172, 176, 223, 224 234, 238.
Historical Collection, 28.
History, Instruction in, 78, 246.
History, Requirement for Admission, 46, 48, 49, 135. 169, 187, 219, 232.
Hobart Guild, 34.
Homœopathic Hospital, 34, 228.
Homœopathic Library, 24, 227.
Homœopathic Medical College, 218, 343.
Hospitals, 33, 181, 228
Houghton Herbarium, 27.
Hour of Credit, 59, 115, 150, 163, 207, 244.
Hydraulics, Instruction in, 144, 158.
Hygiene, Instruction in, 97, 98, 171, 172, 175, 224.
Hygienic Laboratory, 181, 227.

Icelandic, Instruction in, 73.
Inland League, 34.
Instruction, Courses of, 59, 128, 150, 161, 171, 175, 189. 195, 201, 207, 213, 220, 234, 238, 244.
International Law, Instruction in, 87, 191, 195.
Italian, Instruction in, 69.

Laboratories, 29, 147, 148, 149, 176, 227, 239, 240.
Laboratory Expenses, 40, 167, 183, 217, 229. 241.
Laryngology, Instruction in, 172, 173, 222, 224, 225.
Latin, Instruction in, 62, 245.
Latin, Requirement for Admission, 46, 48. 49, 134, 135, 169, 170, 205, 219, 232.
Law, Department of, 185, 319.
Law, Instruction in, 189, 195.
Law Library, 24, 197.
Law, Summer School of, 200.
Lecture Association, 38.
Lectures on Special Subjects, 173, 226.
Lederer Collection, 25.
Lewis Collection of Paintings and Statuary, 29.
Libraries, 23, 181, 197, 216, 227, 239.
Linguistics. Instruction in, 73.
Literary Department. 42, 261.
Lithology, Instruction in. 100.
Logic, Instruction in. 81, 83.
Loud Lectureship, 34.

Machine Shop 141, 148.
Machinery and Mill Work, Instruction in, 144 145.
McMillan Hall, 34.
McMillan Shakespeare Library, 23.
Magnetism, Instruction in, 90, 91, 152, 153, 212.
Marine Engineering, Instruction in, 110, 145. 160.
Master of Arts, Degree of, 23. 129, 199.
Master of Laws, Degree of, 23. 197.
Master of Letters, Degree of, 23, 129, 199.

Master of Philosophy, Degree of, 23, 129, 199.
Master of Science, Degree of, 23, 129, 165, 199.
Materia Medica, Instruction in, 172, 208, 220, 223, 224, 225, 226, 238.
Materia Medica, Museum of, 176, 227.
Mathematics, Instruction in, 88, 139, 152, 246.
Mathematics, Requirement for Admission, 46, 48, 49, 135, 169, 187, 205, 219, 232.
Matriculation Fee, 39.
Mechanical Engineer, Degree of, 23 166.
Mechanical Engineering, 110, 158, 164, 248.
Mechanics, Instruction in, 88, 89, 90, 152, 153, 212.
Mechanism, Instruction in, 158 248.
Medical Jurisprudence 173, 192, 225.
Medical Library, 24, 181.
Medicine and Surgery, Department of, 168, 305.
Mental Diseases, 222 225.
Metallurgy, Instruction in, 97, 146, 154.
Mineral Analysis, Instruction in, 95, 209.
Mineralogical Collection 25.
Mineralogy, Instruction in, 99, 155, 212.
Mining Engineering 110, 161.
Mining Law Instruction in, 192.
Municipal Engineering, 143, 157.
Museums, 25, 150 176, 227, 239.
Music, Instruction in, 77.
Musical Society, 38.

Natural History, Museum of, 25, 181.
Naval Architecture, Instruction in, 145, 160.
Nervous Diseases, 172, 173, 222, 225.
Newberry Hall, 34.
Non-resident Lecturers, 15.
Non-resident Students, 129, 166.
Northern Oratorical League, 36.
Nurses, Training Schools for, 183, 229.

Observatory, Astronomical, 24.
Obstetrics, Instruction in, 172, 173, 182, 221 224, 225.
Ophthalmology, Instruction in, 172, 173, 222 224, 225.
Optics, Instruction in, 90, 91, 153 212.
Oratorical Associations, 36.
Oratory, Instruction in, 76, 194, 246.
Organic Chemistry, Instruction in, 93, 153, 154 171, 210, 223, 234, 247.
Organization of the University, 22.
Osteology, Instruction in, 107, 171, 223, 234.
Otology, Instruction in, 172, 173, 222 224, 225.

Pædology, Instruction in, 222.
Palæontology, Instruction in, 100, 101.
Parsons Library, 23.
Patent Law, Instruction in, 192.
Pathogenetic Laboratory, 227.
Pathological Laboratory, 179.
Pathology, Instruction in, 172, 175, [illegible] 225, 235, 236.
Patterson Collection, 26.
Peck Testimonials, 37.
Pedagogy—See Teaching.
Pennsylvania-Michigan Contests, 37.
Perry Scholarship Fund, 363.
Pharmaceutical Chemist, Degree of, 23, 204 213, 215.
Pharmacognosy, Instruction in, 208.
Pharmacognosy, Museum of, 27.
Pharmacological Laboratory, 179.
Pharmacology, Instruction in, 172, 208, 211, 221.
Pharmacy, Instruction in, 208, 221, 223.
Pharmacy, School of, 203, 339.
Phillips Scholarships 121.
Philosophical Society 80.
Philosophy, Instruction in, 80 246.
Phototopography, Instruction in, 157.
Physical Geography, Instruction in, 101.
Physical Geography Requirement for Admission, 135 232.
Physical Laboratory, 29.
Physics, Instruction in, 90, 139, 152, 171, 209, 212, 223, 246.
Physics, Requirement for Admission, 46, 48, 49, 135, 169, 170 205, 219 232.
Physiological Chemistry, Instruction in, 97 172, 211 224 247.
Physiological Laboratory, 178.
Physiology, Instruction in, 108, 171, 172, 175, 212, 224, 235, 238.
Physiology, Requirement for Admission, 232.
Political Economy, Instruction in, 85, 246.
Political Science, Instruction in, 198.
Practice Court, 192.
Prime Movers, Instruction in, 145, 159.
Professional Study in Literary Department, 110, 174, 199, 220.
Psychological Laboratory, 33.
Psychology, Instruction in, 82, 84.

Quaternions, Instruction in, 89.

Railroad Engineering, 142.
Regents, Board of, 8, 22.
Regents' Field, 36.
Religious Culture, Aids to, 34.
Revell Testimonials, 37.
Rhetoric, Instruction in, 74, 245.
Rhetoric, Requirement for Admission, 44, 134, 187.
Richards Collection of Coins, 29.
Rogers Gallery, 29.
Roman Law, Instruction in, 62, 195.
Rominger Collection, 25.
Rules and Regulations, 122, 162, 243.

Sager Herbarium, 25.
Saginaw High School [illegible]ship, 121.
Sanskrit, Instr[illegible]
Scandina[illegible]
Scho[illegible]